THE WILLIAMSPORT AREA COMMUNITY COLLEGE

BULLETIN

1977-1978

The Williamsport Area Community College

A Two-Year, Co-Educational,

Publicly Supported Institution

Serving North Central Pennsylvania;

Fully Accredited Member of

Middle States Association of Colleges

and Secondary Schools.

THE WILLIAMSPORT AREA COMMUNITY COLLEGE

BULLETIN

AND

ANNOUNCEMENT OF COURSES

1977-1978

1005 WEST THIRD STREET
WILLIAMSPORT, PENNSYLVANIA 17701
(717) 326-3761

Penn College
W.T.I.

THE WILLIAMSPORT AREA COMMUNITY COLLEGE

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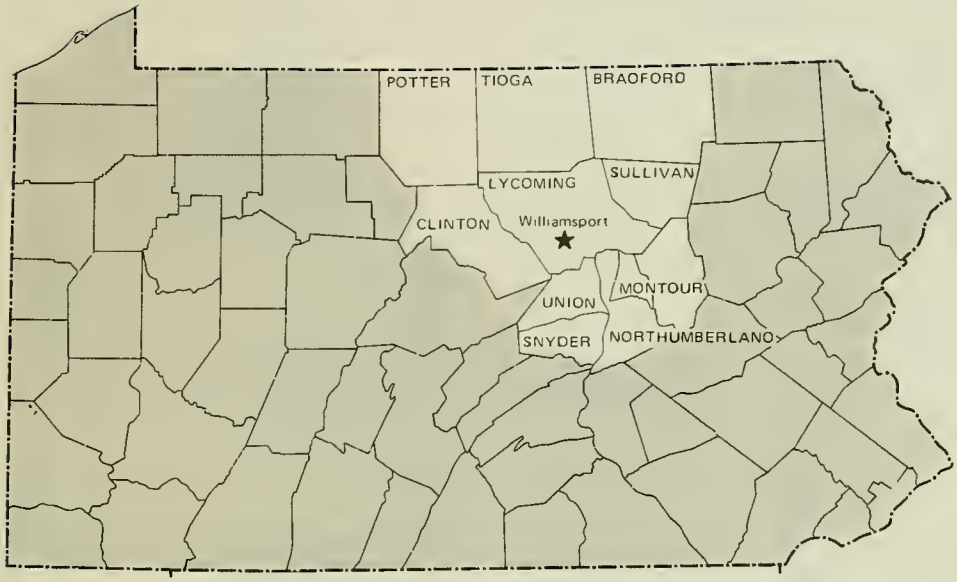


WACC SPONSOR SCHOOL DISTRICTS

Bradford County
- Canton Area
- Troy Area

Clinton County
- Keystone Central

Columbia County
- Millville

Lycoming County
- East Lycoming
- Jersey Shore Area
- Montgomery Area
- Montoursville Area
- South Williamsport Area
- Williamsport Area

Northumberland County
- Line Mountain
- Warrior Run

Potter County
- Northern Potter

Snyder County
- Selinsgrove Borough
- Mid-West

Sullivan County
- Sullivan County District

Tioga County
- Northern Tioga Area
- Southern Tioga Area
- Wellsboro Area

Union County
- Mifflinburg Area

CAMPUS

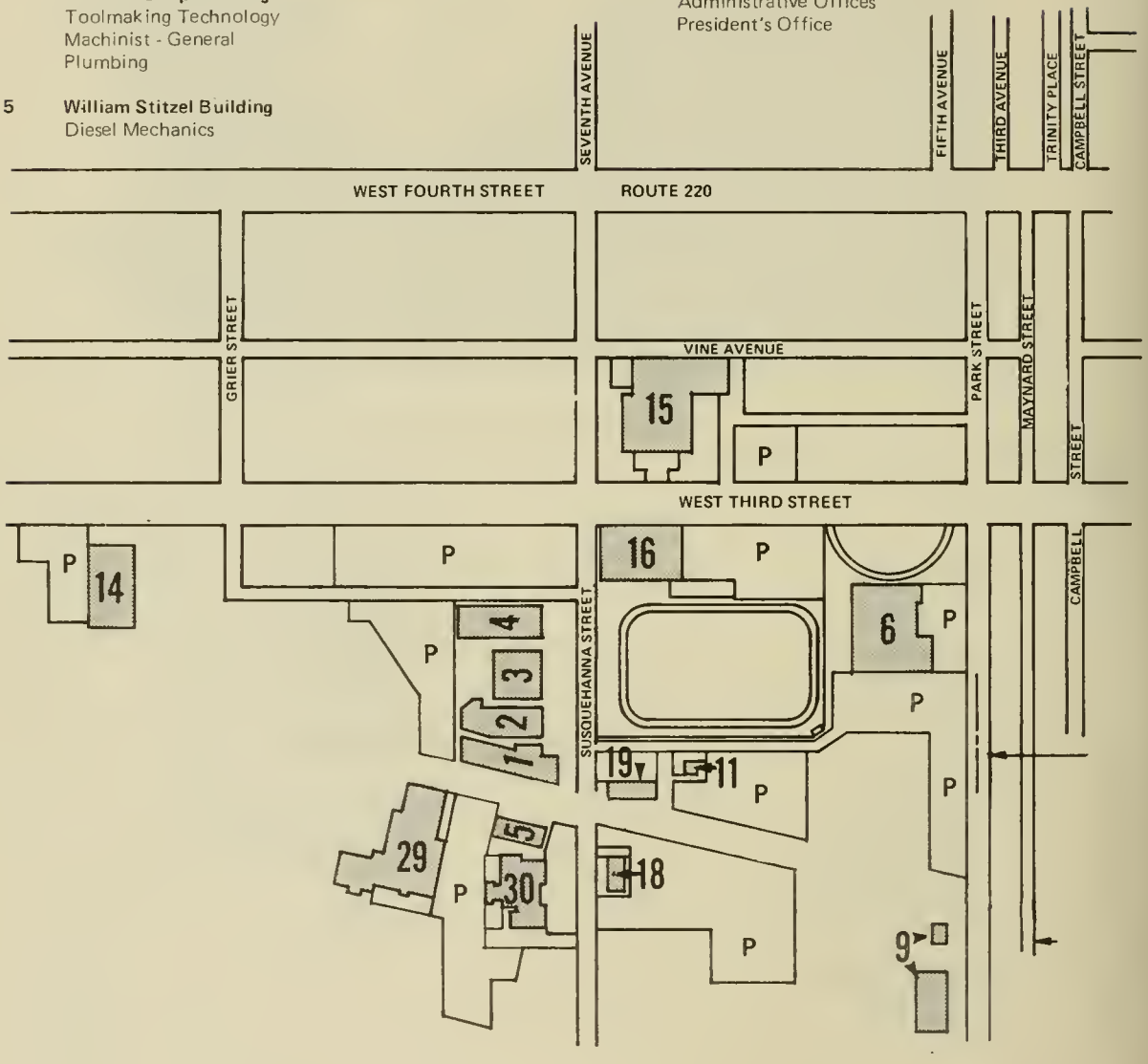
1 **Secondary Automotive Building**

2& 3 **Electrical Building**
Electrical Technology
Electrical Construction
Welding

4 **Machine Shop Building**
Toolmaking Technology
Machinist - General
Plumbing

5 **William Stitzel Building**
Diesel Mechanics

6 **Administration Building**
Architectural Technology
Broadcasting
Electronics Technology
Engineering Drafting Technology
Graphic Arts
Mechanical Drafting
Printing
Technical Illustration
Laboratories
Business Office
Administrative Offices
President's Office

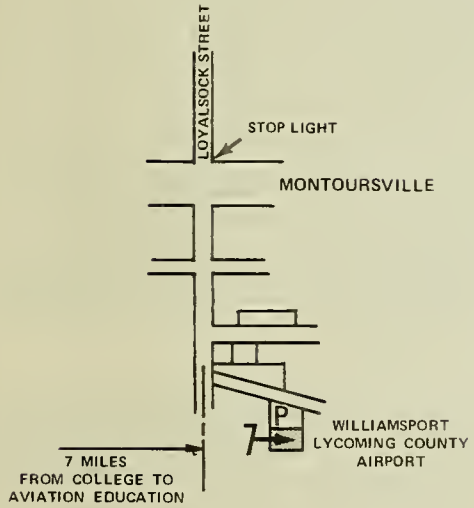


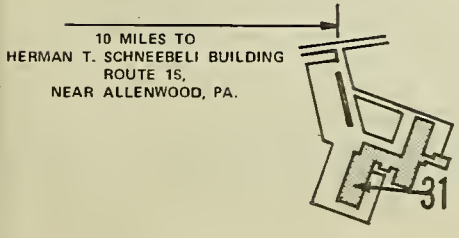
7 **WACC Hanger at Airport**
Aviation Technician

9 **Crooks Maintenance Building**

11 **Student Government House**
SGA Offices

14 **Rishel Building**
Developmental Studies
Learning Resources Center
Sign Painting





15 **Klump Academic Center**
Accounting
Business Management
Computer Science Technology
Food & Hospitality Management
Journalism
Secretarial Science
Admissions & Records
Cafeteria
Classrooms
College Ombudsman
Community Education
Computer Center
Counseling
Dean of Postsecondary
Instructional Services
Financial Aid
Operating Room Technician
Placement
Practical Nursing
Security (Parking, Lost & Found)
Spotlight
Student Activities
Student and Career Development
Tot Watch
Veterans Office

16 **Lewis Bardo Gym**
Physical Education & Health

18 **Audio-Visual Services House**

19 **Lair**
Dispensary
Student-Faculty Center

29 **Cromar Building**
Carpentry
Carpentry & Building
Construction Technology
Civil Engineering Technology
Dean of Secondary
Instructional Services
Bookstore
Plumbing

30 **George Parkes Building**
Auto Body Repairman
Automotive Mechanics
Automotive Technology

31 **Herman Schneebeli Building**
Floriculture
Forest Technology
Heavy Construction Equipment
Service & Operation
Nursery Management

ABOUT THE COLLEGE

A Message from the President

The Williamsport Area Community College has been a pioneer and a leader in vocational education since the early part of the twentieth century. Today, as we enter the last quarter of this century, we plan to continue to build upon our long tradition as a unique educational institution serving the needs of both secondary and postsecondary students.

Our over 3,000 postsecondary degree and certificate students come to us from every county in the Commonwealth, as well as from out-of-state and several foreign countries, to enroll in over 45 vocational-technical, career, and university transfer programs. In addition, we serve several thousand North Central Pennsylvania citizens through diverse non-credit community education courses and special programs taught within our ten county service district.

This Bulletin describes our Postsecondary instructional services and programs. No matter what your objective—personal development, career development—or both, we are interested in helping you achieve your greatest potential. Any adult of any age may take advantage, on a full-time or part-time basis, of the variety of educational opportunities available at The Williamsport Area Community College. We invite you to explore these opportunities with us.

William H. Feddersen

President

Philosophical Platform

We believe in people—in their dignity, in their worth as individuals, and in their capacity to develop their abilities to the fullest potential. We believe that people who perform competently and who find meaning in their work will be healthier and happier people, and the organizations in which they work and the communities in which they live will benefit. We believe in an integrated approach to learning where education and the world of work function in a co-operative atmosphere. We believe that by assisting people in discovering, preparing for, developing and maintaining a career we are also developing the individual and the community.

Mission Statement

It is the mission of The Williamsport Area Community College to provide performance-oriented educational services responsive to the current and future needs and interests of individuals and organizations in our service area. We are dedicated to working with other agencies in developing the full potential of individuals and communities in our area. We are deeply committed to providing quality and accessible career education on both the secondary and postsecondary level, as well as lifelong learning opportunities. Within the resources available to us, we will attempt to carry out our mission as efficiently as possible. Above all, we care about people and will attempt to fulfill our mission within the context of a humanistic educational environment.

Institutional Goals

Primary Goals

1. Provide equal educational opportunities for all citizens of the service area within the context of a humanistic educational environment.

2. Prepare or retrain individuals for employment and advancement through a comprehensive program of career education.

3. Provide services which assist secondary and postsecondary students to explore their career interests, to recognize their aptitudes, develop an educational program which best suits their needs, interests, and potential for personal growth, and to obtain employment in their chosen fields.

4. Contribute to the life-long learning opportunities of our service area through on- and off-campus educational programs in co-operation with other organizations.

Support Goals (Internal)

1. Strive for effectiveness and efficiency in all aspects of institutional operation.

2. Provide appropriate facilities, attractive grounds, and a physical environment which stimulate and enhance learning.

3. Offer programs of staff development for all personnel which foster an institutional climate favorable to individual growth and encourage participation in decision-making by all constituents.

4. Provide an opportunity for communication between the College and all those affected by its operation.

Support Goals (External)

1. Provide for adequate financial resources to support the institution's programs and services.

2. Co-operate with other institutions, organizations, and agencies in formulating and implementing viable programs and services.

3. Communicate the College's mission, goals, objectives, and programs to the public.

4. Maintain accountability to the public, to students, to sponsor school districts, and to the State with regard to the educational, fiscal, legal, and contractual aspects of the operation of the College.

Affirmative Action Policy

The Williamsport Area Community College is committed to the concept and practice of equal opportunity for employment and achievement.

To this end, the Board of Trustees hereby adopts a formal statement of philosophy recognizing that the employment practices of The Williamsport Area Community College will insure fair and equal consideration for all positions, and the College will engage in an affirmative action program to accomplish this. This consideration should be based on non-discriminatory standards, without regard to race, color, sex, age, religion, place of residence or national origin, and that the retention, training, transfer, promotion, and up-grading of all employees are equally subject to these conditions.

History

The Williamsport Area Community College, which now serves over 444,000 people in ten North Central Pennsylvania counties, plus students from other counties, states, and countries, was born in 1914 as a small industrial arts shop at the Williamsport High School. Woodworking and machine shop were the first courses offered.

Following World War I in 1920, retraining veterans, many of them disabled, led to the establishment of the first full-time adult day school in a downtown building. Courses were expanded to include pattern-making, automotive, and electric. An evening industrial school was started at the same time.

In 1927, to meet the demands for supervisors in the rapidly increasing number of diversified industries in the area, the Williamsport School District and the Williamsport Chamber of Commerce co-sponsored evening conferences in foremanship training. This type of school and local industry effort, which saw 150 foremen from twenty plants take the advanced training, has continued throughout the institution's history. The goal has always been to meet both individual and industry needs.

During the Twenties a co-operative work-study industrial course for students over sixteen was begun. By 1929, forty-eight companies were employing students proficient in school shops for alternating periods of work and study.

During the Depression the co-operation between the school and local industry gained nationwide recognition for its efficient and effective attack on rising unemployment through the retraining of men to fill the increasing number of skilled trade positions in the local plants. The Williamsport Plan, which became known and was copied throughout the country, encompassed co-operative training of Civilian Conservation Corps and National Youth Administration young men. Many Works Progress Administration instructors participated in the program.

One example of innovation was a truck driver training course using borrowed trucks. The first of its kind in the nation, the course evolved into the present safe driver course which is part of many high school curriculums. In the heart of the Depression when other school districts were cutting budgets, such imaginative programs so impressed the community that it voted to build a new vocational building to meet the increased enrollment in the high school and adult programs.

On May 21, 1940, only eleven days after Holland and Belgium has been invaded, the school board appointed a special Emergency Training Commission to plan what part the school would play in the conflict which seemed certain to spread. At the end of the regular school term on June 14th, the staff and facilities were immediately shifted from training unemployed men and women to 24-hour a day defense industry training. The institution was one of the first, if not the first, in the country to begin defense training.

By 1941 an astounding 6,500 adults were enrolled. The adult education program and the vocational high school program were merged into one unit known as the Williamsport Technical Institute. The separate programs of study were maintained.

Early in 1942 an intensified program for training handicapped persons for war production was started in co-operation with a local plant and the Pennsylvania Rehabilitation Service. This experience was later applied to anticipating the need to plan for similar training of veterans after the war. Thousands of veterans, many of them disabled, learned trades for post-war jobs using G.I. benefits and school scholarships provided in co-operation with local manufacturers.

Always striving to anticipate and fill area needs, in 1945 the Institute adopted the Watsontown Plan, forerunner of the area technical schools which have since spread throughout the state. In 1947 a job-training and safety program was begun to meet the needs of rural electric co-operatives in Pennsylvania.

Another first in the country was developed in 1951, the Vocational Diagnostic Program to provide a practical method of vocational counseling of rehabilitation clients and those with limited educational backgrounds. Individual clients and those from groups such as the United Mine Workers and the Pennsylvania State Council for the Blind have made extensive use of this unique program.

By 1953 the Williamsport Technical Institute's international reputation as an outstanding vocational center earned it offical approval to train foreign students. Many foreign educators enrolled to study the methods of vocational education as a guide to establishing similar centers in their own countries.

In 1956 the Institute worked closely with the new Industrial Development Committee of the Williamsport Chamber of Commerce which was created to draw new industry to the city. A major factor in the relocation of several companies has been the availability of trained workers and the institution's ability to provide special courses to meet specific needs of these companies.

As a result of the passage of the Community College Act of 1963, studies were begun which led to the establishment of The Williamsport Area Community College. The Institute served as the base for the new institution which opened for classes on September 7, 1965. Students, faculty, staff, administration, and facilities all became part of WACC. Since then, facilities have continued to be expanded and programs have been revised to keep pace with current needs.

During the 1973-74 academic year a major reorganization of the academic and administrative structure was begun to streamline the basic programs and institute modern management methods. The aim is to maintain WACC's historical mission of meeting constantly changing educational needs in the widespread community we serve, and be responsive to the needs of individuals.

ADMISSION

Admissions Policy

The College operates under an open door admissions policy. Entrance examinations are not required for admission to the College. All applicants are eligible to enter the College, but are not guaranteed acceptance into a specific program. The College does not discriminate with regard to age, sex, race, national origin or religion.

In general, a high school diploma or its equivalent is necessary for a student to be admitted on a full-time basis. Adults without these credentials are also eligible for admission into a program appropriate to the aptitudes and abilities of the particular individual.

To implement this policy, the College offers a variety of programs and provides professional counseling to assist the applicant in selecting a program.

Required High School Subjects

The completion of specific high school subjects is required by some of WACC's programs. (See program description for required courses.) It may be possible for students who have not met these requirements to enroll in the program and meet the requirements by completing additional recommended courses at WACC. These courses are designed to provide the student with the academic skills necessary to succeed in the program he/she has selected. See description of Developmental Studies, page 22.

Admission Procedure

Full-Time and Part-Time Degree and Certificate Students

1. Obtain an application for admission by mailing one of the postcards at the back of this catalog, or by writing to:
   Admissions Office
   Williamsport Area Community College
   1005 West Third Street
   Williamsport, Pennsylvania 17701
   or phone (717) 326-3761, Ext. 336

2. Submit a completed application form along with a $10 application fee (non-refundable) to the Admissions Office.

3. Transcripts
   High School Graduates: If you have already graduated from high school, have your high school counselor mail a transcript directly to the Director of Admissions and Records at The Williamsport Area Community College. If you have not graduated from high school, have your high school counselor mail a transcript of the first three years of your high school work and a supplementary transcript after you have graduated.

   GED Examinations: Students who have satisfied the high school graduation requirement by taking the General Education Development examination should have their scores forwarded to the Director of Admissions and Records by the official GED center where the test was taken. If the GED examination was taken through the United States Armed Forces Institute, this organization should be requested to forward your scores to us by writing to them in Madison, Wisconsin. Applicants must be at least 18 years of age before these scores can be used for admission purposes.

4. An interview is not required before you submit an application. However, applicants may be asked to come to the College for an interview after submitting complete credentials. If, at any time, you need additional information or assistance, you can arrange for an interview by writing or calling the Admissions Office.

5. Standardized Tests (ACT-SAT) are NOT required for admission to the College. However, in order to provide a proper entry level for the various college programs, all accepted students will be required to take Placement Examinations given during the Orientation sessions.

6. Tuition Deposit
   All applicants who have been accepted as full-time degree or certificate students must make a $50 non-refundable Tuition Deposit to hold a class reservation in the first semester for which they have applied.

If you enroll at the designated time, the deposit will be credited to your first semester's tuition. If you do not enroll at the designated time, the deposit is non-refundable and can not be carried forward to another semester.

7. All accepted applicants must submit a Health Appraisal Record Form prior to registration.

Adjunct Students

A student who does not wish to pursue a degree or certificate program is not required to make a formal application for admission or to file credentials. Non-degree/non-certificate students enroll directly through Community Education during the designated registration period. If, at a later date, an adjunct student desires to enroll in a degree or certificate program, an application for admission, together with other required credentials, must be submitted to the Admissions Office.

Admission Preferences

Preference for admission will be given to WACC sponsoring school district applicants and WACC Secondary Vocational Students whose applications have been received prior to February 1. It should be noted that most programs have sufficient space for all applying students, although exceptions in certain areas of study may occur from year to year.

Early Admission Policy

A student of exceptional ability who has completed the eleventh grade in an accredited high school may be enrolled as a full-time or part-time student at WACC in either a degree or certificate program during what would normally be the senior year in high school. To qualify for such early admission, the chief administrative officer of your high school must approve and submit the application, together with an official high school transcript, to the Admissions Office for determination of eligibility for the specific degree or certificate program desired. Upon satisfactory completion of your first year in a full-time college program, you can qualify for a regular high school diploma.

Readmission

Former WACC students who wish to be readmitted should request a re-enrollment application from the Admissions Office.

Transfer Students

Students wishing to transfer to WACC should request an application from the Admissions Office. If you wish to transfer credit from another institution, you should have that college send an official transcript directly to the Admissions Office for evaluation. A maximum of thirty (30) credit-hours may be transferred toward an associate degree. If you plan to graduate from WACC, the last semester must be completed here.

Housing

Students are responsible for making their own housing arrangements. The Office of Admissions maintains a list of available housing facilities for men and women. The College does not sponsor, approve, disapprove, evaluate or supervise the listed facilities. An agreement for renting is solely between the landlord and student.

Health Services

A dispensary, staffed by a registered nurse, is open Monday through Friday from 8 a.m. to 3:30 p.m. First aid, health counseling, and assistance in obtaining private health care is available. Costs for private health care are the student's responsibility.

Insurance

A student sickness and accident policy is available at nominal cost. Applications may be obtained at the dispensary.

TUITION AND FEES

Full-Time Students

A full-time student is defined as anyone enrolled in twelve or more credit-hours or an equivalent number of contact-hours per semester.

Application Fee

Applicants for status as full-time students in degree or certificate programs must include a non-refundable $10 Application Fee with their application. You are required to pay this non-refundable fee only once. Applicants for the Practical Nursing program do not pay this fee.

Tuition Deposit

All applicants who have been accepted as full-time degree or certificate students must make a $50 non-refundable Tuition Deposit to hold a class reservation in the first semester for which they have applied.

If you enrolled at the designated time, the deposit will be credited to your first semester's tuition. If you do not enroll at the designated time, the deposit is non-refundable and can not be carried forward to another semester.

Tuition and Related Fees – 1976-77*

Tuition and related fees are governed by your area of residence. The four categories of residence and the tuition and fees for each are:

1. **WACC Sponsoring School District**

   If you reside in a school district which sponsors The Williamsport Area Community College, you must have the secretary of your local school board complete a Certificate of Sponsorship to be eligible for Sponsoring School District tuition rates. The form should be mailed to the Records Office after you have been accepted and as soon as possible prior to registration. (Sponsor School Districts are listed on page 3 of this Bulletin).

   *Tuition and Fees are subject to change without notice.

	FULL-TIME	PART-TIME
TUITION	$295.00	$24.25*
SERVICE FEE	None	None
ACTIVITY FEE	$ 15.00	None
TOTAL	$310.00	$24.25*

LAB/SHOP FEE: Variable**

2. **Pennsylvania School District Sponsoring Another Community College**

   If you reside in a school district which sponsors another Pennsylvania Community College, you must obtain permission, IN WRITING, from the Board of Trustees of that particular institution to qualify for Sponsoring School District tuition and fees. If you do not obtain permission, you will be charged the same tuition and fees as Non-Sponsor students.

	FULL-TIME	PART-TIME
TUITION	$295.00	$24.25*
SERVICE FEE	$100.00	$ 8.35*
ACTIVITY FEE	$ 15.00	None
TOTAL	$410.00	$32.60*

LAB/SHOP FEE: Variable**

3. **Non-Sponsoring Pennsylvania School District**

   If you reside in a Pennsylvania school district which does not sponsor a Pennsylvania Community College, you will pay the following tuition and fees:

	FULL-TIME	PART-TIME
TUITION	$600.00	$50.00*
SERVICE FEE	$100.00	$ 8.35*
ACTIVITY FEE	$ 15.00	None
TOTAL	$715.00	$58.35*

LAB/SHOP FEE: Variable**

4. **Out-of-State Resident**

Out-of-State students will pay the following tuition and fees:

	FULL-TIME	PART-TIME
TUITION	$ 850.00	$70.85*
SERVICE FEE	$ 200.00	$16.65*
ACTIVITY FEE	$ 15.00	None
TOTAL	$1065.00	$87.50*

LAB/SHOP FEE: Variable**

*Per Semester-hour of Credit, or equivalent

**If applicable. Lab and shop fees vary from program to program. A list of lab fees is available from the Office of Admissions and Records or the Cashier's Office.

Withdrawals and Refunds

Charges for tuition are refundable upon official withdrawal from the College as explained in the Academic Information section. Application fees, service fees, activity fees, and tuition deposits are not refundable. A "Request for Refund" form can be obtained from the Cashier's Office.

Refunds of tuition will be made according to the following schedule for fall and spring semesters:

Prior to the first day of Classes	100% Refund
First Week of Classes	80% Refund
Second Week of Classes	70% Refund
Third Week of Classes	60% Refund
After Third Week of Classes	No Refund

Books and Supplies

Expenses for books and supplies will vary considerably from program to program. College policy strives to keep your expenses as low as possible by operating the College Bookstore on a low-cost basis. For full-time students the cost can be as high as $100 per semester.

Tools

When you have been accepted for a particular program, the Admissions Office will provide you with an appropriate list of tools which will be used during your course of study. It is recommended that you do not buy any tools or protective clothing for any course before you attend the first class session. Tool costs vary greatly—from $10 the first semester for welding tools to $200 for construction technology equipment. Total first-year tool costs range from $15 for operating room technician students to $260 for construction students. Prospective students should contact the Office of Admissions and Records for a list of estimated costs for each program. It should be emphasized that these tools will be your personal property, an investment you will use with pride throughout your career.

Transcripts

There is a charge of $1.00 for each transcript of academic record requested by a student.

Graduation Fee

A graduation fee of $5.00 is assessed each student during the semester prior to graduation to cover the cost of a diploma or certificate.

Veterans Information

The College has been approved by the Veterans Administration for the education and training of veterans. A Veterans' Representative is available at the Office of Admissions and Records for counseling and assistance.

Veterans desiring advance payment should file an application for advance payment with the Office of Admissions and Records, together with a copy (not the original) of their DD 214, and, if applicable, their marriage certificate and children's birth certificates. This should be filed approximately two months before enrolling. Veterans not desiring advance payment should follow the same procedure, except they may file at the time of registration. Application forms are available at the Office of Admissions and Records or from the Veterans Affairs Office in the student's county.

FINANCIAL AID

Recognizing that the cost of education is often greater than the student and his family can afford without help, the Financial Aid Office operates to help students obtain financial assistance through a variety of aid programs:

- Grants
- Scholarships
- Loans
- College Work-Study Program
- Veteran's Benefits
- Social Security Benefits
- Vocational Rehabilitation Sponsorship
- Part-Time Employment

Every student is encouraged to thoroughly explore each of the above programs, and to contact the Financial Aid Office for assistance in obtaining and completing applications for aid.

Employment

Students interested in part-time employment other than the College Work-Study program, should contact the College Placement Office for further information.

Special Attention

Deadlines

Students who want the fullest consideration for all awards, should have all needed application materials complete and on file in the Financial Aid Office as soon as possible. For the 1977-78 year, for example, completed applications for some forms of aid should be on file by May 1, 1977. Applications received after this date will be processed and students filing late will be considered for aid, but only after other applications received by the deadline have been reviewed and awards made.

An exception to the above deadline is made for the Guaranteed Student Loan Program. Loan applications may be submitted at any time during the year, but should be filed early enough to allow for the 6 to 8 week processing time prior to loan approval and release of funds to the applicant.

Need Analysis Forms

To determine a student's financial eligibility for awards, especially Supplemental Grants and College Work-Study awards, a review of the family financial situation must be completed.

Two national groups assist Financial Aid Offices by offering "need analysis" systems: The American College Testing Corporation (Family Financial Statement) and the College Scholarship Service (Parents Confidential Statement.)

At WACC, only the American College Testing Family Financial Statement, or FFS, is used for need analysis purposes. Family Financial Statement forms can be obtained from the Financial Aid Office.

Further Information and Assistance with Applications.

Further information about all of the financial aid programs listed above can be obtained from the Financial Aid Office at the address below. The College's Financial Aid Brochure, which provides more information about all of these programs, should be obtained at this address and used as a guide in applying for aid. For information and applications, call, write, or visit:

Financial Aid Office, WACC
Williamsport Area Community College
1005 West Third Street
Williamsport, Pennsylvania 17701
(717) 326-3761, Ext. 241

CAMPUS LIFE

The time you will spend outside the classroom will be an important part of your college life. You are encouraged to participate in the social, cultural, educational, vocational, and recreational activities which augment the instructional program.

Athletics

We believe that a well-balanced program of intramural and intercollegiate sports plays an important role in the overall educational program.

At present, the College has basketball, wrestling, cross-country, golf, and tennis teams that compete on an intercollegiate level.

Intramurals provide an opportunity to participate in active competition to improve physical strength and skill, to pursue leisure time activities, and to develop friendships. The Physical Education staff conducts a variety of intramural athletic leagues for men and women. Activities include basketball, bowling, golf, handball, horseshoes, soccer, softball, table tennis, touch football, track and field, volleyball, wrestling, and others.

Cheerleading

This activity is under the direction of a faculty member. Announcements of tryouts are made each fall. Cheerleaders are selected on the basis of skill, poise, personality, and enthusiasm.

College Colors and Nickname

The College colors, gold and burgundy, and the nickname, Wildcats, were selected by popular vote of the students.

Clubs

New student clubs and organizations are constantly being formed. The following clubs are currently recognized on the WACC campus:

Alpha Omega Fellowship
Alpha Pi Delta (Architecture)
Alumni Association
Chi Gamma Iota (Veterans)
Cinema Club
Drama Club
Food Service Student Organization
Forest Technician Association
Gamma Epsilon Tau (Graphic Arts)
Horticulture Technicians Association
Inter-Club Council
Mechanical Engineering Club
Men's Residence Council
Northcentral Pennsylvania Chapter of the Construction Specifications Institute
Outing Club
Phi Beta Lambda (Business)
Sports Car Club
Spotlight Staff
Student Government Association
Student Society of Manufacturing and Engineering
Varsity Club
Wildcat Band
Yearbook Staff

Publications

The Spotlight is the official College newspaper published at regular intervals throughout the college year. Staff positions are open to all students.

Montage is the college yearbook which provides a pictorial account of the school year with a focus on the graduating class. Practical experience in writing and editorial work is available through staff membership.

The Student Handbook provides information on student events, regulations, and student services.

New Week News is a weekly newsletter which keeps the student body and faculty informed on current issues, announcements, programs, and activities that affect the College.

Colours, the College literary magazine, publishes poetry and prose by WACC's students.

Army Reserve Officers Training Corps (ROTC)

WACC students may enroll in the Army Reserve Training Corps (ROTC) Program offered through a cross enrollment provision with Bucknell University. The ROTC classes are held at Bucknell University. All qualified men and women are eligible to enroll in the basic course—Freshman and Sophomore years—and can compete for ROTC scholarships. The advance course—Junior and Senior years—will be taken at a four year institution after the student transfers. The successful completion of Army ROTC will be entered upon the student's permanent academic record but WACC will not grant academic credit.

Social and Cultural Events

The Student Government Association sponsors dances, Fall and Spring Weekend events, plus other social and cultural events.

Student Government

The Student Government Association is the student governing body of the College. Its purpose is to provide maximum opportunity through a democratic, representative organization for students to promote the interests of the students and of the College. It functions within a constitution originated by the students.

Wildcat Band

The Wildcat Band is a student musical group organized to play for athletic activities and campus and community events. All interested students are urged to participate.

STUDENT AND CAREER DEVELOPMENT SERVICES

Orientation

Prospective students at WACC participate in an orientation program designed to provide positive feelings about the College and to introduce them to the college community and its various services and activities. Students are placed in appropriate academic courses and registered for their first semester. This process aids the student in becoming aware of the College community and promotes involvement in various activities.

Counseling Center

The Counseling Center is available to help students with personal, academic, and career problems.
Advisors: Each student is assigned an advisor who will assist in setting up a schedule of courses. The advisor is usually an instructor in the student's program area.
Counselors: Counselors are available to aid the student in the resolution of many types of problems. Such problems may involve social, emotional, vocational, and personal concerns. The student is the focal point of the process. Any need which is perceived by the student as important will be viewed in the same way by the counselor.
Ombudsman: Student concerns which are not resolved through normal college channels can be directed to this office. The Ombudsman will investigate exceptional problems, resolve them if possible, or provide the results of his investigation with recommendations to the President of the College for a decision. This office is located in the Counseling Center.

Career Placement

The Placement Office maintains a file of full and part-time employment opportunities and provides employment counseling. These facilities are designed to aid the graduating student seeking employment, alumni interested in career and employment information, and students who want to work part-time while attending school.

College Transfer Placement

The College Transfer Counselor is available to advise those students who need assistance in transferring to other educational institutions.

Vocational Diagnostic Program

Making career decisions can be difficult and confusing. The Vocational Diagnostic Program offers the student a method by which he can obtain more information about himself and his abilities. It entails testing, counseling, and actual job trials. Students are given maximum exposure to those vocational directions they desire to explore. This service is available to both students and non-students. For fees and additional information write or phone:

Vocational Diagnostic Program
The Williamsport Area Community College
Williamsport, Pennsylvania 17701
(717) 326-3761, ext. 242

Tot Watch

A supervised day care center is provided on campus from 8:00 a.m. to 4:00 p.m. during the fall and spring semesters. Parents with pre-school children age 3-5 may use these services for a nominal fee.

Career Development Center

The Career Development Center is located in Room 210 of the Klump Academic Center. Career Development is a concept which attempts to bring together information, related programs, and counseling to assist students in career decision making. Information, including pamphlets, booklets, film strips and other career library information will be available in the Center for student use. Other services which will be available include programs in skill areas such as self awareness and decision making, career speakers, and group and individual counseling.

ACADEMIC INFORMATION

Classification of Students

Full-Time: A full-time student is one who carries 12 or more credits in an Associate Degree Program or 360 hours or 12 credit equivalents in a Certificate Program. Sixteen hours of lecture/demonstration, or 48 hours of shop/lab equal one credit equivalent.

Part-Time: A degree or certificate candidate who carries less than 12 credits or equivalent certificate hours per semester is enrolled as a part-time student.

Adjunct: An adjunct student is one who does not go through the formal admissions process and therefore is not matriculated for a degree or a certificate. Such a student is permitted to select courses without regard to degree or certificate requirements.

Special Student: A rehabilitated or handicapped student who cannot perform some of the requirements in certain shop programs is awarded a special certificate. It is not awarded to a student who may have failed to meet the requirements of a certificate program. Prior to entrance to a program it should be determined whether or not a student will receive a special certificate upon completion of that portion of the program which the student is able to carry. The only exception to this ruling will be the student who becomes handicapped while enrolled in a certificate program.

Freshmen: Students who have completed a total of fewer than 24 credits or the equivalent are classified as freshmen.

Sophomore: Students who have completed a total of 24 or more credits or the equivalent are classified as sophomores.

Registration

All students must register for desired courses each semester during the dates and in the manner prescribed by the College. If your registration is not completed, including payment of all required fees, prior to the beginning of classes, you will not be permitted to attend class.

Credit and Semester-Hour Load

The academic year is divided into two semesters of approximately sixteen weeks each. The normal load per semester is 15 to 18 semester-hours or the equivalent. Students should allow an average of at least two hours preparation for each semester-hour of course work.

A student may not enroll for more than 18 semester-hours without special permission from the Dean. A student must have earned either a 3.0 cumulative average or a 3.0 average the previous semester in order to qualify to take a course overload in either the Associate Degree programs or the Certificate programs.

Fees for students enrolling for overload credits: A student enrolled for more than 18 credits or equivalent (possible only upon approval of the Dean) will be charged the current student tuition rate per credit or credit equivalent for each credit over 18. This charge is determined by the student's official place of residence. (See Tuition and Fees.)

Change of Course

After the official registration period is over, the student may make adjustments in his schedule through the process of adding and/or dropping courses.

Dropping a Course: The student has the right and opportunity to drop a college course up to the final withdrawal date as specified in the College Calendar for that term with a grade of "W". A student should consult with his instructor and advisor prior to making the decision to drop a course. If the course is dropped beyond the designated period, a grade of "W" or "WF" will be awarded, depending upon the approval of the respective instructor and the Dean. No credit will be given for a "W" grade; however, a "WF" grade affects the student's grade point average in the same manner as an "F". To stop attending a class without officially dropping the course incurs the grade of "F".

Adding a Course: A student may add a course only during the first week of classes (two days in Summer Term) by having his advisor complete a "Request for Change of Course" form.

The approval of the appropriate Division Director(s) must be obtained before a change can be made.

Repeating a Course

Students may repeat a course in which they earned a grade of D or F. However, they must improve the grade of the repeated course to affect their cumulative grade-point average, in which case both grades will appear on the permanent record card with the higher grade used in calculating the cumulative grade-point average. If a student repeats a course and earns a second D or F, the second grade and credits will not be used in calculating the cumulative grade-point average.

Cumulative Average Computations for Students Who Re-Enroll at WACC

If a student drops out of The Williamsport Area Community College for a period of at least two academic years and applies for admission and re-enrollment in the same program of study, the previous cumulative average is dropped. However, all previous grades remain on the transcript.

Auditing a Course

Fees for audits will be assessed on the same basis as fees for credit courses. Auditors are not required to prepare lessons or papers or take examinations, nor do they receive credit for the course.

With the consent of the instructor and the Dean of PSIS, a full-time student may enroll as an auditor in any course that has not exceeded its enrollment quota. An adjunct student (one who is not enrolled in a degree or certificate program) needs the permission of the Assistant Dean for Community Education and the instructor to become an auditor.

Grading System

The college uses the following system of grading (4.00 basis) to indicate the quality of a student's work:

Grade		Grade Points
A	Superior	4
B	Above Average	3
C	Average	2
D	Below Average	1
F	Failing Work	0
W	Withdrawn	—
WF	Withdrawn Failing	0
I	Incomplete	—
AU	Audit	—

If a student is awarded a letter grade of "I," the instructor will submit a letter with the student's grade card stating what the student must do to complete the work and remove the "I." The instructor will also set a deadline, prior to the end of the semester following the awarding of the incomplete, for the required work to be completed. Copies of the letter will be sent to the student and his advisor. A permanent F will be recorded if the work is not completed within the prescribed time.

A student's grade-point average is computed by dividing the number of grade points by the total number of credits or certificate hours for which the student has earned a grade of A, B, C, D, F, or WF.

Advanced Placement Credit

Advanced placement at The Williamsport Area Community College is designed to give students who have completed specific competencies prior to entering college the appropriate placement and credit for their accomplishments. The College believes that it has the obligation to place students at the proper educational level to insure success. Students who have completed advanced academic courses in high school, military service, or other education or training institutions and pass appropriate placement examinations will be given advanced placement consideration. Student application for advanced placement credit must be sent to the Office of Admissions and Records no later than the end of the first week of classes after a student officially enrolls in the College. It is recommended that such applications be submitted by March 15 of the year during which the student wishes to enroll.

WACC recognizes skills-training by students at area vocational-technical schools. To verify the degree of skill a student has attained, the College may grant credit on the placement exams or evaluation of previous vocational work. Up to the equivalent of two semesters of credit (academic, shop, or lab) may be granted toward such advanced placement.

Credit by Examination

Students may earn credit by examination through the College Level Examination Program or may challenge any college course by examination. In order to challenge any college course by examination, a student must have completed at least one semester at The Williamsport Area Community College and earned a grade point average of 2.0. Application to take a course by examination should be made in writing to the appropriate Division Director. Approval must then be given by the instructor(s) of the course involved and the Division Director.

If the approval is received, a fee of $25 must be paid at the Business Office prior to each examination.

The examination is prepared, administered (at the time set by the Division Director) and evaluated by the instructor(s) of the course involved. No examination will be prepared or administered until the student presents the $25 receipt.

Credits for course(s) passed by examination will be entered on the student's transcript. Credit given by examination may not be used to remove a D, F, or WF grade. The examination in a specific subject may be taken only once.

Up to a maximum of 30 credits may be earned through credit by examination.

Credit for Work and/or Life Experiences

Many individuals acquire rich academic and technical experiences through working and/or living in a

particular situation; students who feel their work or living experiences warrant consideration for academic credit should make application to the respective Division Director or the Dean of Postsecondary Instruction. The application should include evidence and rationale as to why the credit should be granted.

Up to a maximum of 30 credits may be earned for credit for Work and/or Life Experiences.

Foreign Studies Program

The Williamsport Area Community College, in cooperation with other Pennsylvania and New York colleges, offers a limited number of credit and non-credit foreign living, work, and study programs. These programs are designed to promote international understanding and build bridges of friendship among peoples of the world. For more information on this program contact:

Dean of Postsecondary Instructional Services
The Williamsport Area Community College
1005 West Third Street
Williamsport, PA 17701
phone (717) 326-3761, Ext. 264

Cooperative Education

In the spring 1977 semester WACC will begin to implement cooperative education in some of its programs. Cooperative education will integrate the student's academic study with work experience in cooperating employer organizations. For more information, contact:

Director of Cooperative Education
The Williamsport Area Community College
1005 West Third Street
Williamsport, PA 17701
phone (717) 326-3761

Cross-Registration

The Williamsport Area Community College participates in a cross-registration program with Lycoming College. With the permission of the Dean of Postsecondary Instructional Services, and the student's division director and advisor, a full-time student at WACC may enroll in courses which are not offered by WACC at Lycoming College. Students may obtain additional information on cross-registration procedures from their advisors or the Records Office.

Graduation Requirements

Associate Degree

The successful completion of a recommended two-year program of study (as listed in this Bulletin) at The Williamsport Area Community College leads to an Associate of Applied Science, an Associate of Arts, or an Associate of Applied Arts Degree. To be eligible for an Associate Degree from The Williamsport Area Community College, the student is expected to satisfy the following:

a. Complete a recommended program of study as set forth in this Bulletin. Students may substitute courses with the permission of the appropriate division director and the Dean of Postsecondary Instructional Services.
b. Complete a minimum of 30 credits, including the last semester, at The Williamsport Area Community College. Credits earned by Advanced Placement, Credit by Examination or Life Experience may be included in this 30 credit minimum.
c. Earn at least a C average (2.00 cumulative grade-point average).
d. Satisfy health and physical education requirements unless exempt.
e. Fulfill all financial obligations to the College.

Certificates

Certificates will be awarded for the satisfactory completion of a specific program of study as listed in this Bulletin. To be eligible for a Certificate from The Williamsport Area Community College, the student is expected to satisfy the following:

a. Complete a recommended program of study as set forth in this Bulletin. Students may substitute courses with the permission of the appropriate division director and the Dean of Postsecondary Instructional Services.

b. Complete at least half of the hours, including the last semester, at the College. Credits earned by Advanced Placement, Credit by Examination or Life Experiences may be included in this 30 credit minimum.
c. Earn at least a C average (2.00 cumulative grade-point average).
d. Fulfill all financial obligations to the College.

Additional Information

If, after completing your final semester, you lack some credits required for a degree or certificate, you may, with approval of the Dean, be permitted to take up to six semester credit hours from another college to fulfill requirements for a degree or certificate from The Williamsport Area Community College. Only grades of C or better are acceptable for such transfer credit.

Note: In order to graduate a student must report to the Student Academic Records Office and complete a "Petition for Graduation" card during the first five weeks of classes of the semester in which the student intends to graduate. The entire summer session is considered as one semester.

Progress Reports

The College will notify, by mail, all students who are making unsatisfactory progress (D or F) in any course at mid-semester. Students who receive such mid-term grades should immediately consult with their instructors and faculty advisor in an effort to improve the quality of their work. Final semester grades will be mailed after the end of the semester or summer sesssion.

The Dean's Honor List

The honor list is announced by the Dean at the completion of each semester. The list will include only those full-time students who have a grade-point average of 3.30 or better.

Withdrawal from College

If a student finds it necessary to withdraw from the College for any reason, the student must:

1. Officially withdraw by reporting to his/her advisor to obtain and complete the necessary withdrawal forms.
2. Satisfactorily account for all property issued by the College.
3. Settle all outstanding College obligations.

Students who do not officially withdraw from the College in the prescribed manner will receive the grade of "W" or "WF" in all courses.

No refunds will be issued unless a student completes the necessary steps and initiates them within the proper time frame. (See page 12 for dates for withdrawals and refunds).

Student Conduct

On admission to The Williamsport Area Community College you accept unqualified commitment to conduct yourself at all times, both on and off the campus, in a responsible manner which conforms with the generally accepted standard of adult behavior. It is expected that you will show courtesy and respect for the administrative officers, faculty, and employees in your personal contacts. You must also understand and accept the necessity for various College regulations and comply with the directives of those authorized to enforce the regulations. If you conduct yourself in a manner contrary to the best interests of the College you will be subject to such penalties as the circumstances justify, including suspension or expulsion. Additional information regarding student conduct on campus is available in the Student Handbook.

A student may be suspended or dismissed for improper conduct, failure to comply with College regulations, academic dishonesty, habitual absences, lack of effort and interest, possession of, or being under the influence of, alcoholic beverages or illegal drugs, or under other circumstances as determined by the Board of Trustees.

In all cases where academic dishonesty is established, the student may be dropped from the course with a

grade of F. For a second offense, the student may be dismissed from the College. In a case involving a question of academic dishonesty, the professor in whose class the incident is alleged to have occurred will consult with the appropriate Division Director regarding disciplinary action.

Attendance Regulations

Regular and prompt attendance at all classes and at scheduled conferences with instructors is expected of all students. All work missed by reason of absence, regardless of the cause, must be made up to the satisfaction of the instructor. Students who know that they will be absent are expected to get assignments from instructors in advance so that the necessary work will be completed before the student leaves, or immediately upon his return. This applies to absences for college activity trips as well as absences for other reasons. In all cases of anticipated absence, students should confer with their instructors in advance whenever possible.

Academic Probation

Any degree or certificate candidate whose cumulative grade-point average is below 2.00 will be placed on academic probation. A student on probation will be required to report to the Counseling Center for special counseling before being allowed to register for classes the following semester. A student may be dropped from the College unless the following grade-point average is earned:

Beginning of:	Cumulative Grade-Point Average
Second Semester	1.50
Third Semester	1.80
Fourth Semester	1.90

Students are encouraged to seek consultation on academic matters with their advisor or a college counselor.

Final Examinations

Final examinations are scheduled at designated times at the end of each semester. The schedule normally provides for an examination period for each course. A student who is absent from a final examination without good reason is subject to a failing grade.

COMMUNITY EDUCATION

Community Education is one of the major functions of The Williamsport Area Community College. The Community Education Center is an integral part of the College, designed to extend the resources of the College to the community. Its purpose is: 1. to provide low-cost lifetime learning opportunities, cultural and personal enrichment, recreation and career training or up-grading for adults from the college community; 2. to provide special training, employee up-grading, or other educational programs on or off-campus designed to meet the needs of community organizations, professional associations, business, industry, institutions, prisons, and government agencies.

The Community Education Center, in addition to offering short, hourly mini-courses and career courses, provides special programs and services through workshops, lectures, seminars, contract programs, consultations and conferences to meet the immediate needs of the communities served.

Some typical illustrations of the services available are: Manpower Training programs, prison, police, fire, in-plant, and other special career programs; and such courses as homemaking, business, computer science, recreational and cultural, technical and trade, personal development, and current issues and topics.

Information concerning such course and program offerings is available prior to each term or at the beginning of a new program.

For additional information contact the Assistant Dean for Community Education, (717) 326-3761, ext. 231.

Community Education Tuition

The sponsor district students and sponsor districts shall each pay $.50 per hour for hourly Community Education/Continuing Education courses which are academic, vocational and/or pre-career in nature. Except for a few high cost programs the student will pay a $1.00 per hour fee for such courses that do not fit the above classifications and are purely leisure/

recreational and/or special personal interest courses. The sponsor districts will not be billed for these courses.

Engineer In Training Program (EIT)

The Engineer in Training Program is a non-degree, non-certificate program. The purpose of the program is to prepare individuals, through a series of courses, to take the EIT examination. The EIT examination is one step in the process of being registered as a professional engineer in the state of Pennsylvania. These courses are open to anyone who desires to take the examination.

DEVELOPMENTAL STUDIES PROGRAM

The Developmental Studies program is designed to serve a variety of students: those who lack academic skills and requisites for the curriculum of their choice; the "non-traditional" student: unemployed adults, adults returning to school after a number of years of absence, high school dropouts, veterans; those students referred to the program by instructors who recognize a need for one or more of the program's services; those who require assistance and solicit the program services on a "walk-in" basis. The program consists of courses in academic skills, human development, study skills, and career planning.

Students may enter the entire program or part of it as the result of counseling, placement tests, academic record, or personal choice. While in the program, students will take courses in their curriculum. One strength of the program is the frequent contact with advisors who assist the student with course selection, problem solving, decision making, career planning.

Classwork is designed to promote a successful teaching-learning atmosphere. Varied learning strategies, individualized and self-paced instruction, small group sessions, tutorial and media support are integrated into the course work.

ASSOCIATE DEGREES

You can earn one of three Associate degrees at The Williamsport Area Community College. All of them can be used to help you gain immediate employment or to serve as the base from which you can pursue further studies. Flexibility in each degree program gives you maximum freedom in meeting your individual needs.

The Associate of Applied Science (AAS) degree program emphasizes technical career skills and is not specifically designed for transfer. More and more four-year colleges, however, are accepting AAS degrees in full or partial transfer credit toward a bachelor's degree.

The Associate of Arts (AA) is a program primarily designed to parallel the first two years work at a four-year college. Credits earned can usually be transferred toward the first two years of a bachelor's degree.

The Associate of Applied Arts (AAA) is offered in Broadcasting, Journalism, and Advertising Art. The degree is not designed for transfer but colleges accept partial or full transfer credit toward a Bachelor's degree.

Associate of Applied Science

If you want to gain knowledge, proficiency, and skills in a particular technical, career, or vocational area, you can earn an Associate of Applied Science degree. Each particular program has prescribed courses that you must complete in order to graduate.

The College offers Associate of Applied Science (AAS) degrees in the following areas:

Building Technologies
- Carpentry & Building Construction Technology

Business & Computer Science
- Accounting
- Business Management
- Computer Science Technology
- Industrial Technology
- Secretarial Science
  - (Executive, Legal, Medical)

Earth Science
- Forest Technology
- Ornamental Horticulture Technology—Floriculture
- Ornamental Horticulture Technology—Nursery Management

Electrical/Electronics
- Electrical Technology
- Electronics Technology

Engineering & Design Technologies
- Architectural Technology
- Civil Engineering Technology
- Engineering Drafting Technology
- Graphic Arts
- Technical Illustration
- Tool Design Technology
- Toolmaking Technology

Mathematics, Science, and Allied Health
- Dental Laboratory Technician*
- Food & Hospitality Management
- Radiologic Technology

Trasnsportation Technologies
- Automotive Technology

*Given at Lewisburg Penitentiary only

For Graduation Requirements see page 19.

Associate of Arts

General Studies

The Associate of Arts in General Studies is the degree usually completed by students who wish to transfer to a four-year institution offering the last two years of study toward a four-year degree. The AA Degree allows considerable flexibility in course selection for transfer of credits regardless of your field of concentration. It is strongly recommended that you contact the transfer counselor at WACC for his recommendations in selecting your courses. You and your WACC advisor can then plan a tentative program at WACC that will be within the broad outline of the specific four-year degree in which you are interested.

For Graduation Requirements see page 19.

College and University Transfer Programs

These programs are designed to be transferable into four-year college degree programs. The College and University Transfer Programs allow considerable flexibility in course selection regardless of your field of concentration. It is strongly recommended that you contact the transfer counselor at WACC for his recommendation in course selection. Your and your advisor can then plan a program at WACC that meets your needs and satisfies specific transfer requirements.

Programs are available in the following areas:

- Biology
- Business Administration
- Chemistry
- Economics
- English
- History
- Home Economics
- Liberal Arts/Humanities
- Mathematics
- Physics
- Preparation for Elementary School Teaching
- Preparation for Secondary School Teaching
- Preparation for Social Work
- Preparation for Vocational Teaching
- Psychology
- Social Science
- Sociology

The minimum requirements for this program are the same as those for an Associate of Arts in General Studies.

Pre-Professional: The College offers the opportunity to start a number of specialized programs at WACC and complete them at a four-year college. You should plan your courses according to the requirements of the four-year college to which you may wish to transfer. Transfer programs can be started at WACC in the following areas:

- Pre-Dentistry
- Pre-Law
- Pre-Medicine
- Pre-Ministerial Study
- Pre-Nursing
- Pre-Occupational Therapy
- Pre-Optometry
- Pre-Pharmacy
- Pre-Veterinary Medicine

The minimum requirements for this program are the same as those for an Associate of Arts in General Studies.

Individual Studies

Want to add a new dimension to your degree program? Individual Studies programs are designed to give you flexibility in planning your course of study. Students who wish to combine study in a technical or applied science field with general studies may elect fifteen (15) credits in Applied Science courses. If you are unsure of your future goals, interested in personal enrichment, or want to explore a technical career, the Individual Studies program provides the most flexibility.

Associate of Applied Arts

If you want to gain knowledge, proficiency, and skills in a particular vocational or career area, you can earn an Associate of Applied Arts degree. Each particular program has prescribed courses that you must complete in order to graduate.

The College offers Associate of Applied Arts (AAA) degrees in the following areas:

Communications, Humanities, and Social Sciences
- Broadcasting
- Journalism

Engineering and Design Technologies
- Advertising Art

For Graduation Requirements see page 19.

CERTIFICATE IN SPECIAL FIELD OF STUDY

These programs are occupational in nature and are heavily skills oriented. They are not primarily designed for transfer but in certain cases can be transferred to some colleges. Certificate programs require the equivalent of two to four semesters of full-time course work in which you must maintain a 2.0 grade-point average.

A new feature of these Certificate in Special Field of Study programs is the Optional Elective. As the names implies an Optional Elective can be chosen to broaden the basic academic work required of all college students. You are urged to make use of the opportunity to enrich your educational experience.

Certificates are offered in the following areas:

Building Technologies
- Construction Carpentry
- Plumbing and Heating

Business and Computer Science
- Clerical Studies
- Computer Operator

Earth Science
- Service & Operation of Heavy Construction Equipment

Electrical/Electronics
- Electrical Construction
- Office Machine Repairman (not offered 76/77)

Engineering & Design Technologies
- Machinist General
- Mechanical Drafting
- Printing
- Sign Painting
- Welding

Mathematics, Science & Allied Health
- Operating Room Technician
- Practical Nursing

Transportation Technologies
- Auto Body Repairman
- Automotive Mechanics
- Aviation Maintenance Technician
- Diesel Mechanics

DIVISIONS AND PROGRAMS

BUILDING TECHNOLOGIES
Division Director, George C. Krause

Carpentry & Building Construction Technology (CB)
Construction Carpentry (CC)
Plumbing and Heating (PL)

BUSINESS & COMPUTER SCIENCE
Division Director, Dr. Donald B. Bergerstock

Accounting (BA)
Business Management (BM)
Clerical Studies (BT)
Computer Operator (CO)
Computer Science Technology (CS)
Industrial Technology (IT)
Secretarial Science (BS):
- Executive
- Legal
- Medical

College & Univeristy Transfer Program
- Business Administration

COMMUNICATIONS, HUMANITIES & SOCIAL SCIENCES
Division Director, Dr. Charles Q. Simcox

Broadcasting (BR)
Journalism (JO)

College & University Transfer Programs
- Economics
- English
- History
- Liberal Arts/Humanities
- Pre-Law
- Pre-Ministerial Study
- Pre-Occuptional Therapy
- Preparation for Elementary School Teaching
- Preparation for Secondary School Teaching
- Preparation for Social Work
- Preparation for Vocational Teaching
- Psychology
- Social Science
- Sociology

Service Courses
- Art
- Education
- German
- Government
- Philosophy
- Spanish

EARTH SCIENCE
Division Director, Joseph G. Sick

Forest Technology (FR)
Heavy Construction Equipment Service & Operation (SO)
Ornamental Horticulture Technology (OH):
- Floriculture (FL)
- Nursery Management (NM)

ELECTRICAL/ELECTRONICS
Division Director, Donald O. Young, Sr.

Electrical Construction (EW)
Electrical Technology (EL)
Electronics Technology (ET)
Office Machine Repairman (OR) (not offered 76-77)

ENGINEERING & DESIGN TECHNOLOGIES
Division Director, Paul L. McQuay

Advertising Art (AR)
Architectural Technology (AT)
Civil Engineering Technology (CT)
Engineering Drafting Technology (ED)
Graphic Arts (GA)
Machinist General (MG)
Mechanical Drafting (MD)
Printing (GP)
Sign Painting (SP)
Technical Illustration (TI)
Tool Design Technology (TD)
Toolmaking Technology (TT)
Welding (WE)

MATHEMATICS, SCIENCE & ALLIED HEALTH

Division Director, Dr. Robert G. Bowers

Dental Laboratory Technician (DL)*
Food & Hospitality Management (FH)
Food Service Management (FM)*
Operating Room Technician (OT)
Practical Nursing (NU)
Radiologic Technology (RT)

College & University Transfer Programs

Biology
Chemistry
Home Economics
Mathematics
Physics
Pre-Dentistry
Pre-Medicine
Pre-Nursing
Pre-Optometry
Pre-Pharmacy
Pre-Veterinary Medicine

Service Courses

Environmental Science
Geography
Geology

TRANSPORTATION TECHNOLOGIES

Division Director, John Hammond

Auto Body Repairman (AB)
Automotive Mechanics (AM)
Automotive Technology (AU)
Aviation Maintenance Technician (AC)
Diesel Mechanics (DM)

COMMUNITY DEVELOPMENT & PHYSICAL EDUCATION

Director of Community Development & Coordinator of Physical Education, Thomas E. Vargo

Service Courses

Health & Physical Education

COMMUNITY EDUCATION

Assistant Dean, Dr. Vincent De Sanctis

Programs & Courses

DEVELOPMENTAL STUDIES (LC)

Courses

*Given at Lewisburg Penitentiary only

BUILDING TECHNOLOGIES

CARPENTRY AND BUILDING CONSTRUCTION TECHNOLOGY (CB) ASSOCIATE DEGREE/TWO YEARS

This program covers the theoretical and practical aspects of light building construction. It also explores the principles and techniques of light-frame carpentry and masonry with emphasis on design, construction, cost estimation, and management.

Types of Jobs: Positions leading to foreman, building technician, or construction superintendent.
Required High School Subjects: Two years of algebra; one year of science. One year of geometry is desirable. For exception, see pg. 9.
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
CB	10	Woodworking for Carpenters	4
CB	11	Construction Carpentry	4
MAT	103	College Algebra	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
PE		Physical Education	1
			15

SECOND SEMESTER

			Credits
CB	24	Estimating and Blueprints	2
CB	25	Block Construction	6
MAT	104	College Trigonometry	3
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
PE		Physical Education	1
			15

THIRD SEMESTER

			Credits
CB	30	Roof-framing Theory	3
CB	34	Brick Construction	5
EL	14	Electricity for the Trades	3
ECO	11	Basic Economics	
		or	3
ECO	201	Principles of Economics	
PHY	21	Physics-Mechanics	4
			18

FOURTH SEMESTER

			Credits
CB	40	Advanced Carpentry	4
CB	42	Building Construction Technology	6
CB	44	Concrete Construction	3
		Elective-General*	3/4
			16/17

CONSTRUCTION CARPENTRY (CC) CERTIFICATE/TWO YEARS

Students in this program receive laboratory instruction on the proper use of hand tools, portable power tools and portable power equipment, and become licensed in the use of power activated tools. The necessary classroom theory on methods, procedures, and materials is given. The program includes working on the construction of a residential building under supervision of qualified instructors.

Types of Jobs: Apprentice carpenters or masons, with advancement possibilities to journeyman, master, or foreman; also employment in plants or factories where building units, components, or building materials are made or sold.

FIRST SEMESTER

			Hours
CC	51	Concrete and Block (8 weeks)	200
CC	61	Brick and Stone (8 weeks)	200
MAT	10	Technical Mathematics I	48
ENG	01	Communications I	48
			496

SECOND SEMESTER

			Hours
CC	52	Framing and Sheathing (8 weeks)	200
CC	62	Exterior Finish (8 weeks)	200
AT	25	Basic Arch. Drafting	96
			496

THIRD SEMESTER

			Hours
CC	53	Interior Finish (8 weeks)	176
CC	63	Interior Trim (8 weeks)	176
CC	73	Blueprints and Specifications	48
		Optional Elective	0/48
			400/448

FOURTH SEMESTER

			Hours
CC	54	Specialty & Related Trades (8 weeks)	152
CC	64	Practical Construction Experience (8 weeks)	152
CC	74	Building Trades Estimating	48
CC	84	Personal & Job Orientation	48
		Optional Elective	0/48
			400/448

PLUMBING AND HEATING (PL) CERTIFICATE/TWO YEARS

The student is taught the basic theories of plumbing and heating, soil waste and vent layout, household and industrial maintenance, sewage systems, and the use of hand and power tools. The fundamentals of communications and mathematics are also covered. Training is provided in all types of plumbing and heating repair work as it applies to residential, institutional, and commercial applications.

Types of Jobs: Plumbing and heating installation, industrial maintenance, public utilities service, machine work and shipbuilding industries.

FIRST SEMESTER

			Hours
PL	10	Plumbing and Heating I (8 weeks)	192
PL	15	Plumbing and Heating II (8 weeks)	192
MAT	10	Technical Mathematics I	48
			432

SECOND SEMESTER

			Hours
PL	20	Plumbing and Heating III (8 weeks)	192
PL	21	Plumbing and Heating IV (8 weeks)	192
ENG	01	Communications I	48
EL	14	Electricity for the Trades	80
			512

THIRD SEMESTER

			Hours
PL	30	Plumbing and Heating V (8 weeks)	192
PL	31	Plumbing and Heating VI (8 weeks)	192
WE	01	Acetylene Welding	80
		Optional Elective	0/48
			464/512

FOURTH SEMESTER

			Hours
PL	40	Plumbing and Heating VII (8 weeks)	192
PL	41	Plumbing and Heating VIII (8 weeks)	192
WE	02	Electric Welding	80
		Optional Elective	0/48
			464/512

BUSINESS AND COMPUTER SCIENCE

ACCOUNTING (BA) ASSOCIATE DEGREE/TWO YEARS

This program provides a broad business background with specialization in accounting. It begins on the elementary levels of accounting and business and advances to more complex levels.

Types of Jobs: Public, private, government, and corporate accounting, cost accounting, tax consultant, auditor, comptroller.

FIRST SEMESTER

			Credits
BA	12	Accounting I*	3
BM	13	Principles of Business	3
BM	23	Business Mathematics	3
BS	15	Typewriting I	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
PE		Physical Education	1
			16

SECOND SEMESTER

			Credits
BA	22	Accounting II*	3
BM	24	Office Procedures	2
BA	45	Income Tax Accounting	3
CS	18	Fundamentals of Computer Science	3
ENG	211	Fundamentals of Speech	3
PE		Physical Education	1
			15

THIRD SEMESTER

			Credits
BA	32	Intermediate Accounting I	3
BA	42	Cost Accounting	3
BM	21	Business Communications	3
BM	31	Business Law I**	3
		Elective-Computer Science	3
		Elective-Social Science	3
			18

FOURTH SEMESTER

			Credits
BA	44	Intermediate Accounting II	3
BA	46	Auditing	3
BM	41	Business Law II**	3
ECO	201	Principles of Economics	3
		Elective	3/4
			15/16

*Students may elect BUS 201 and BUS 202 with permission of the Division.

**Students may elect BUS 250 and BUS 251 with permission of the Division.

BUSINESS MANAGEMENT (BM) ASSOCIATE DEGREE/TWO YEARS

This program provides basic business knowledge and covers management theory and application procedures, business concepts, and the effect of business on the economy.

Types of Jobs: Junior-executive or management trainee positions in manufacturing, retailing, finance, banking, insurance, marketing, and government.

FIRST SEMESTER

			Credits
BA	12	Accounting I*	3
BM	13	Principles of Business	3
BM	23	Business Mathematics	3
BS	15	Typewriting I	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
PE		Physical Education	1
			16

SECOND SEMESTER

			Credits
BA	22	Accounting II*	3
BM	24	Office Procedures	2
BM	45	Finance	3
CS	18	Fundamentals of Computer Science	3
ENG	211	Fundamentals of Speech	3
PE		Physical Education	1
			15

THIRD SEMESTER

			Credits
BA	30	Managerial Accounting	3
BM	21	Business Communications	3
BM	31	Business Law I**	3
		Elective-Computer Science	3
		Elective-Social Science	3
		Elective	3
			18

FOURTH SEMESTER

			Credits
BM	36	Marketing	3
BM	41	Business Law II**	3
BM	48	Supervision & Human Relations	3
ECO	201	Principles of Economics	3
		Elective	3
			15

*Students may elect BUS 201 and BUS 202 with the permission of the Division.

**Students may elect BUS 250 and BUS 251 with the permission of the Division.

CLERICAL STUDIES (BT)
CERTIFICATE/ONE YEAR
(Starts in January of each year)

This program provides the fundamentals of typewriting, business machine calculation, and clerical procedures. It also covers indexing principles, filing, and basic office techniques.

Types of Jobs: Clerk-typist, business machine operator, filing, general clerical, elementary accounting work, shorthand transcription.

FIRST SEMESTER

			Credits	Hours
BM	14	Office Machines	2	64
BS	15	Typewriting I	3	80
BS	17	Clerical Procedures	7	176
ENG	01	Communications I	3	48
			15	368

SECOND SEMESTER

			Credits	Hours
BM	21	Business Communications	3	48
BM	23	Business Mathematics	3	48
BS	27	Clerical Workshop	8	192
BS	21	Typewriting II	3	80
			17	368

COMPUTER OPERATOR (CO)
CERTIFICATE/ONE YEAR

This program trains the student in all aspects of data processing operations and the effective utilization of the equipment. The student is prepared for entry into industry as a qualified computer operator and related technician. This program provides an option for those students who have an interest and aptitude for a data processing career, but do not desire to be programmers.

Types of Jobs: Computer operator, peripheral data processing equipment operator, operations manager, data and job control managers and technical sales representatives.

FIRST SEMESTER

			Credits	Hours
CO	10	Basic Computer Operations	4	96
CO	11	Computer Operations Internship I	2	96
CS	18	Fundamentals of Computer Science	3	48
BA	12	Accounting I*	3	48
BS	09	Typewriting	1	48
ENG	11	Language & Composition I	3	48
			16	384

SECOND SEMESTER

			Credits	Hours
CO	20	Advanced Computer Operations	4	64
CO	21	Computer Operations Internship II	2	96
CO	22	Computer Technology	3	48
CS	17	RPG Programming	3	48
BM	24	Office Procedures	2	64
ENG	13	Technical Writing	3	48
			17	368

*Students may elect BUS 201 with Division permission.

COMPUTER SCIENCE TECHNOLOGY (CS) ASSOCIATE DEGREE/TWO YEARS

This program trains the student in various computing systems in electronic data processing. It provides a broad range of knowledge of programming techniques and experience in operation of computer systems and peripheral data processing equipment. The curriculum offers a secondary background in business accounting and management or math and science.

Types of Jobs: Computer programmer, junior systems analyst, sales representative, related technician.
High School Subjects Required: Two units of mathematics including Algebra. For exception, see pg. 9.
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
CS	17	RPG Programming	3
CS	18	Fundamentals of Computer Science	3
BA	12	Accounting I**	3
ENG	11	Language & Composition I***	3
MAT	100	Introduction to Mathematics I****	3
PE		Physical Education	1
			16

SECOND SEMESTER

			Credits
CS	27	Assembler Language Programming	4
CS	28	COBAL Programming I	3
ENG	12	Language & Composition II***	3
MAT	200	Introduction to Mathematics II****	3
PE		Physical Education	1
		Elective-Math/Science	
		or	3/4
		Elective-Business	
			17/18

THIRD SEMESTER

			Credits
CS	33	Systems Development & Applications I	3
CS	36	Fortran IV & Linear Programming	4
CS	38	COBAL Programming II	3
MAT	201	Elementary Statistics I	3
		Elective-Math/Science	
		or	3/4
		Elective-Business	
			16/17

FOURTH SEMESTER

			Credits
CS	43	Systems Development & Applications II	3
CS	45	Computer Software Systems	3
CS	46	PL/1 Programming	3
		Elective-Math/Science	
		or	3/4
		Elective-Business	
		Elective-General*	3/4
			15/17

**Students may elect BUS 201 with Division permission.

***Students may elect ENG 101 and ENG 102 with permisssion of the Communications, Humanities & Social Sciences Division.

****Students may elect MAT 103 and MAT 104 or MAT 112 and MAT 211 with permission of the Mathematics, Science & Allied Health Division.

INDUSTRIAL TECHNOLOGY (IT)

The Associate Degree in Industrial Technology is especially geared to the employed person who wishes to upgrade himself, either for personal or professional reasons.

This program has been designed to be flexible; it can be tailored to fit the student's personal requirements as they relate to present employment and long-term career plans.

A minimum of sixty credits, carefully selected by the student and his advisor, will qualify the student for the Associate Degree. As many as thirty credits may be awarded by advanced placement, credit by examination, or life experience; thus eliminating much of the course work to be completed on campus.

The minimum requirements for the Associate Degree in Industrial Technology are:

	Credits
English	6
Mathematics	9
*Natural Sciences	6/8
Social Sciences and Humanities	12
**Electives	27
	60/62

Final approval of all courses will be given by the advisor and Division Director.

*Natural Science credits in excess of six may be substituted as electives.

**Courses should be geared primarily toward the student's vocational goals and/or a specialized area of concentration.

SECRETARIAL SCIENCE (BS)-EXECUTIVE ASSOCIATE DEGREE/TWO YEARS

This program provides proficiency in the secretarial skills of typing, shorthand, the operation of business machines, and general office practices. Supplementary courses in accounting, business, and liberal studies are included in the program.

Types of Jobs: Business office in commerce, government, industry or the professions.

FIRST SEMESTER

			Credits
BM	14	Office Machines	2
BM	23	Business Mathematics	3
BS	14	Shorthand I	3
BS	15	Typewriting I	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
PE		Physical Education	1
			15

SECOND SEMESTER

			Credits
BA	11	Elementary Accounting	3
BM	21	Business Communications	3
BS	21	Typewriting II	3
BS	24	Shorthand II	3
BS	28	Secretarial Procedures	2
PE		Physical Education	1
		Elective-Social Science	3
			18

THIRD SEMESTER

			Credits
BM	13	Principles of Business	3
BS	31	Typewriting III	3
BS	34	Shorthand Workshop	6
ENG	211	Fundamentals of Speech	3
			15

FOURTH SEMESTER

			Credits
BM	48	Supervision & Human Relations	3
BS	44	Secretarial Workshop	8
BS	45	Office Internship	1
		Elective	3/4
			15/16

SECRETARIAL SCIENCE (BS)-LEGAL ASSOCIATE DEGREE/TWO YEARS

This program provides proficiency in the secretarial skills of typing, shorthand, the operation of business machines, and general office practices. Supplementary courses in business law and liberal studies are included in the program.

Types of Jobs: Business, commerce, and law.

FIRST SEMESTER

			Credits
BM	14	Office Machines	2
BM	23	Business Mathematics	3
BS	14	Shorthand I	3
BS	15	Typewriting I	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
PE		Physical Education	1
			15

SECOND SEMESTER

			Credits
BA	11	Elementary Accounting	3
BM	21	Business Communications	3
BS	21	Typewriting II	3
BS	24	Shorthand II	3
BS	28	Secretarial Procedures	2
PE		Physical Education	1
		Elective-Social Science	3
			18

THIRD SEMESTER

			Credits
BM	31	Business Law I*	3
BS	31	Typewriting III	3
BS	34	Shorthand Workshop	6
ENG	211	Fundamentals of Speech	3
			15

FOURTH SEMESTER

			Credits
BM	41	Business Law II*	3
BS	44	Secretarial Workshop	8
BS	45	Office Internship	1
		Elective	3/4
			15/16

*Students may elect BUS 250 and BUS 251 with permission of the Division.

SECRETARIAL SCIENCE (BS)-MEDICAL ASSOCIATE DEGREE/TWO YEARS

This program provides proficiency in the secretarial skills of typing, shorthand, the operation of business machines, and general office practices. Supplementary courses in biology, medical terminology, and liberal studies are included in the program.

Types of Jobs: Doctors, dentists, hospitals, and various health occupation offices.

FIRST SEMESTER

			Credits
BM	14	Office Machines	2
BM	23	Business Mathematics	3
BS	14	Shorthand I	3
BS	15	Typewriting I	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
PE		Physical Education	1
			15

SECOND SEMESTER

			Credits
BA	11	Elementary Accounting	3
BM	21	Business Communications	3
BS	21	Typewriting II	3
BS	24	Shorthand II	3
BS	28	Secretarial Procedures	2
BIO	25	Anatomy and Physiology	3
PE		Physical Education	1
			18

THIRD SEMESTER

			Credits
BS	31	Typewriting III	3
BS	34	Shorthand Workshop	6
ENG	211	Fundamentals of Speech	3
ST	30	Medical Terminology	3
			15

FOURTH SEMESTER

			Credits
BS	44	Secretarial Workshop	8
BS	45	Office Internship	1
		Elective-Social Science	3
		Elective	3/4
			15/16

COMMUNICATIONS, HUMANITIES, AND SOCIAL SCIENCES

BROADCASTING (BR)
ASSOCIATE DEGREE/TWO YEARS

Announcers and newsmen from nearby radio stations will assist the faculty in teaching modern broadcasting techniques using the College's radio studio and television system. Background courses in history, government, economics, sociology, and psychology are included in the program.

Types of Jobs: Radio or television announcer, disc jockey, news commentator, public relations assistant, advertising copywriter.
*GENERAL ELECTIVES are courses chosen from outside your Program of concéntration.

FIRST SEMESTER

			Credits
BS	15	Typewriting I	3
BR	10	Introduction to Announcing	3
ENG	101	English Composition I	3
ENG	211	Fundamentals of Speech	3
GOV	201	American Government-National	3
			15

SECOND SEMESTER

			Credits
BR	16	Newswriting for Broadcasters	3
BR	17	Basic Electronics & FCC Licensing	3
BR	21	In-Service Training I	2
GOV	202	State & Local Government	3
SOC	101	Introduction to Sociology	3
PE		Physical Education	1
			15

THIRD SEMESTER

			Credits
BR	18	Advanced Announcing	3
BR	19	Radio Programming	3
BR	22	In-Service Training II	2
ECO	11	Basic Economics	3
PE		Physical Education	1
		Elective-General*	3
			15

FOURTH SEMESTER

			Credits
BR	14	Station Management & Community Responsibility	3
BR	20	Broadcast Advertising	3
BR	23	In-Service Training III	2
ESC	10	Environmental Science	3
PSY	101	General Psychology	3
		Elective-General*	3
			17

JOURNALISM (JO)
ASSOCIATE DEGREE/TWO YEARS

Practical courses in news and feature story writing, news photography, editing, copy writing, and community responsibility are taught. Background courses in history, government, economics, sociology, and psychology are included in the program.

Types of Jobs: Newspaper reporter, advertising copywriter, public relations assistant, news photographer, magazine research assistant.
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
BS	15	Typewriting I	3
JO	10	News Writing	3
ENG	101	English Composition I	3
ENG	211	Fundamentals of Speech	3
GOV	201	American Government-National	3
			15

SECOND SEMESTER

			Credits
JO	11	Photography for Newsmen	2
JO	12	News Reporting	3
JO	21	In-Service Training I	2
GOV	202	State & Local Government	3
SOC	101	Introduction to Sociology	3
		Elective-General*	3
			16

THIRD SEMESTER

			Credits
JO	13	Feature Writing	3
JO	14	Editing	3
JO	22	In-Service Training II	2
ECO	201	Principles of Economics	3
PE		Physical Education	1
		Elective-General*	3/4
			15/16

FOURTH SEMESTER

			Credits
JO	16	Newspaper Management and Community Responsibility	3
JO	23	In-Service Training III	2
JO	30	Advertising	3
ESC	10	Environmental Science	3
PSY	101	General Psychology	3
PE		Physical Education	1
		Elective-General*	3/4
			18/19

EARTH SCIENCE

FOREST TECHNOLOGY (FR) ASSOCIATE DEGREE/TWO YEARS

This program includes basic forestry techniques, activities and field work. It provides sufficient general academic courses and specialized forestry courses to prepare the student to occupy a responsible position between the skilled forest worker and the professional forester.

Types of Jobs: In public agencies—Forest fire control; wildlife habitat improvement; maintenance of forest roads, structures, and recreation areas; timber estimation; timber marking, stand improvement.
In private employment—Pulpwood procurement; timber estimating, planning and construction of forest roads; supervision of logging operations; location and survey of forest property lines.
Required High School Subjects: Two years of algebra, one year of science. For exception, see pg. 9.
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
FR	11	Dendrology	3
FR	13	Forest Mensuration	3
FR	15	Forest Botany	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	103	College Algebra	3
PE		Physical Education	1
			16

SECOND SEMESTER

			Credits
FR	21	Photogrammetry & Forest Surveying I	3
FR	26	Forest Ecology/ Wildlife Management	3
FR	28	Advanced Forest Mensuration	3
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
MAT	104	College Trigonometry	3
PE		Physical Education	1
			16

THIRD SEMESTER

			Credits
BM	13	Principles of Business	3
FR	32	Forest Surveying II	3
FR	33	Equipment and Machinery	3
FR	36	Timber Harvesting	3
FR	46	Silviculture	3
			15

FOURTH SEMESTER

			Credits
FR	38	Forest Protection	3
FR	42	Forest Products	3
FR	48	Forest Land Management & Recreation	3
ECO	11	Basic Economics	
		or	3
ECO	201	Principles of Economics	
		Elective-General*	3/4
			15/16

HEAVY CONSTRUCTION EQUIPMENT SERVICE AND OPERATION (SO) CERTIFICATE/TWO YEARS

This program provides the student with the principles of maintaining, repairing and operating many types of construction equipment. It includes the re-building of internal combustion engines, basic surveying, and complete mechanical safety measures.

Types of Jobs: Operating, mechanical repair, service of heavy equipment. Self-employed or work with contractors, dealers, miners, and quarriers.

FIRST SEMESTER

			Hours
SO	11	Service and Operation I (8 weeks)	216
SO	12	Service and Operation II (8 weeks)	216
MAT	10	Technical Mathematics I	48
			480

SECOND SEMESTER

			Hours
SO	23	Service and Operation III (8 weeks)	192
SO	24	Service and Operation IV (8 weeks)	192
ENG	01	Communications I	48
		Optional Elective	0/48
			432/480

THIRD SEMESTER

			Hours
SO	35	Service and Operation V (8 weeks)	216
SO	36	Service and Operation VI (8 weeks)	216
		Optional Elective	0/48
			432/480

FOURTH SEMESTER

			Hours
SO	43	Service and Operation VII (8 weeks)	240
SO	44	Service and Operation VIII (8 weeks)	240
			480

ORNAMENTAL HORTICULTURE TECHNOLOGY (OH)
Floriculture (FL)
ASSOCIATE DEGREE/TWO YEARS

This program involves the business of growing, designing, and selling flowers, foliage, and related materials. It is directed toward employment with florists in planning, growing, designing, managing, and selling floral products and services.

Types of Jobs: Flower propagation; flower sales, both retail and wholesale; flower shop management; assisting in plant pathology; own business.
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
BIO	03	Botany	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	20	Technical Mathematics II	3
OH	11	Horticulture Soils	3
OH	12	Woody Plants I	2
OH	13	Herbaceous Plants	3
			17

SECOND SEMESTER

			Credits
CHE	11	Fund. of Chemistry	
		or	4
CHE	105	General Organic Chemistry	
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
OH	20	Greenhouse Crop Production I	3
OH	30	Floral Design I	3
PE		Physical Education	1
			14

THIRD SEMESTER

			Credits
OH	39	Floral Design II	3
OH	31	Greenhouse Crop Production II	3
OH	37	Plant Insects and Diseases	3
OH	24	Plant Propagation	3
PE		Physical Education	1
		Elective-General*	3/4
			16/17

FOURTH SEMESTER

			Credits
OH	43	Flower Shop Operation	3
OH	41	Greenhouse Crop Production III	3
OH	46	Horticulture Mechanics	3
OH	33	House & Conservatory Plants	3
		Elective-General*	3/4
			15/16

ORNAMENTAL HORTICULTURE TECHNOLOGY (OH)
Nursery Management (NM)
ASSOCIATE DEGREE/TWO YEARS

This program prepares the student to propagate, grow to a commercial size and profitably sell the many species and varieties of woody plants. It also covers the identification of commercially important plants and the design, construction and maintenance of landscape plans and features.

Types of Jobs: Growing trees and shrubs with private nurseries, nursery stock salesman or buyer, horticulturist with a governmental agency (city, state, federal), landscaping, and, ultimately, your own business.
*GENERAL ELECTIVES are course chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
BIO	03	Botany	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	20	Technical Mathematics II	3
OH	11	Horticulture Soils	3
OH	12	Woody Plants I	2
OH	13	Herbaceous Plants	3
			17

SECOND SEMESTER

			Credits
CHE	11	Fundamentals of Chemistry	
		or	4
CHE	105	General Organic Chemistry	
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
OH	21	Nursery Production I	3
OH	26	Woody Plants II	3
PE		Physical Education	1
			14

THIRD SEMESTER

			Credits
OH	37	Plant Insects and Diseases	3
OH	35	Nursery Production II	3
OH	42	Woody Plants III	3
OH	24	Plant Propagation	3
PE		Physical Education	1
		Elective-General*	3/4
			16/17

FOURTH SEMESTER

			Credits
OH	45	Landscape Construction	3
OH	46	Horticulture Mechanics	3
OH	49	Landscape Design	3
OH	48	Landscape Maintenance	3
		Elective-General*	3/4
			15/16

ELECTRICAL/ELECTRONICS

ELECTRICAL CONSTRUCTION (EW) CERTIFICATE/TWO YEARS

This program stresses the manual skills needed to install wiring and electrical equipment, using blueprints, in buildings. Required courses in mathematics, science, and communications enhance the student's vocational opportunities.

Types of Jobs: Electrical construction union apprentice, industrial maintenance, self-employment in residential and commercial wiring and in electrical shops, electrical tester or inspector, power company employee.

FIRST SEMESTER

			Hours
EL	12	Basic Wiring Lab	96
EW	11	Direct Current Fundamentals	160
EW	18	Motor Rewinding I	96
MAT	10	Technical Mathematics I	48
ENG	01	Communications I	48
			448

SECOND SEMESTER

			Hours
EW	21	Alternating Current Fund.	160
EW	24	Basic Motor Control	96
EW	35	Residential Blueprint and Code	64
MAT	20	Technical Mathematics II	48
EL	18	Accident Prevention	32
		Optional Elective	0/48
			400/448

THIRD SEMESTER

			Hours
EW	31	Basic Electrical Construction Lab	112
EW	39	Basic Electronics for Industry	160
EW	37	Advanced Motor Control	96
PHY	20	Physics Survey	48
ED	02	Engineering Drafting	64
			480

FOURTH SEMESTER

			Hours
EW	41	Commercial & Industrial Blueprint Reading	64
EW	42	Industrial Motor Control	96
EW	44	Advanced Electrical Construction	144
EW	49	Electrical Machinery, Analysis and Repair	128
		Optional Elective	0/48
			432/480

ELECTRICAL TECHNOLOGY (EL) ASSOCIATE DEGREE/TWO YEARS

This program prepares the student to work as an electrical technologist with electronic equipment and electrical machinery. It stresses electrical basics, including theory, circuits, industrial electronics, electrical machinery, and electrical construction. Required courses in mathematics, science and communications enhance the student's vocational opportunities.

Types of Jobs: Electrical technology and laboratory work, industrial maintenance technician, trouble shooter for electrical equipment manufacturers.
High School Subjects Required: Two years of algebra; one year of science. For exception, see pg. 9.
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
EL	15	Direct Current Fundamentals	5
EL	16	Basic Wiring Lab	3
EL	18	Accident Prevention	2
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	103	College Algebra	3
PE		Physical Education	1
			17

SECOND SEMESTER

			Credits
EL	25	Alternating Current Fund	5
EL	26	Basic Electrical Construction Lab	2
EL	27	Residential Blueprint Reading & National Electrical Code	4
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
MAT	104	College Trigonometry	3
			17

THIRD SEMESTER

			Credits
EL	38	Electric Motor Control	4
EL	39	Basic Electronics	6
PHY	21	Physics-Mechanics	4
PE		Physical Education	1
		Elective-General*	3/4
			18/19

FOURTH SEMESTER

			Credits
EL	42	Advanced Electrical Theory	3
EL	47	Electrical Systems Analysis	2
EL	48	Electrical Construction Blueprint Reading	4
ECO	11	Basic Economics	3
PHY	33	Physics-Heat and Light	4
			16

ELECTRONICS TECHNOLOGY (ET) ASSOCIATE DEGREE/TWO YEARS

This program presents basic electronics theories and their application to current practices and future developments. Practical laboratory work with modern electronic equipment prepares the student to assist electronic engineers in the design, construction, installation and testing of all kinds of electronic equipment.

Types of Jobs: Electronics engineering technician, electronic instrument technician, electronic lab technician, industrial electronics technician, production technician, and technical writer.

High School Subjects Required: Two years of algebra; one year of science. For exception, see pg. 9.

*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
ET	11	Electronics Theory I	5
ET	12	Electronics Applications I	3
ET	14	Electrical Circuit Analysis	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	103	College Algebra	3
			17

SECOND SEMESTER

			Credits
ET	21	Electronics Theory II	5
ET	22	Electronics Applications II	3
ET	23	Basic Electronics Circuit Analysis	3
ENG	13	Technical Writing	
		or	3
ENG	102	English Composition II	
MAT	104	College Trigonometry	3
			17

THIRD SEMESTER

			Credits
ET	33	Intermediate Electronics Circuit Analysis	3
ET	34	Electronics Theory III	5
ET	37	Electronics Applications III	3
PE		Physical Education	1
		Elective-Math/Science	3/4
			15/16

FOURTH SEMESTER

			Credits
ET	47	Electronics Theory IV	5
ET	48	Electronics Applications IV	3
PE		Physical Education	1
		Elective-Electronics	3
		Elective-General*	3/4
			15/16

OFFICE MACHINE REPAIRMAN (OR) CERTIFICATE/TWO YEARS (not offered 76-77)

This program trains the student to perform periodic inspections and to make repairs on different types of office machines and equipment. Related courses such as mathematics, typing, and economics provide the student with a better chance for advancement.

Types of Jobs: Typewriter, adding machine, duplicator serviceman; manufacturer's service representative; shop foreman in distribution outlet, branch manager, and self-employment.

FIRST SEMESTER

			Hours
BS	09	Typewriting	48
OR	12	Office Machine Repair I	384
ENG	01	Communications I	48
			480

SECOND SEMESTER

			Hours
OR	22	Office Machine Repair II	432
MAT	10	Technical Mathematics I	48
			480

THIRD SEMESTER

			Hours
OR	32	Office Machine Repair III	432
		Optional Elective	0/48
			432/480

FOURTH SEMESTER

			Hours
OR	43	Office Machine Repair IV	432
		Optional Elective	0/48
			432/480

ENGINEERING AND DESIGN TECHNOLOGIES

ADVERTISING ART (AR) ASSOCIATE DEGREE/TWO YEARS

This program prepares students for employment in advertising art and related fields. The program provides skills in drawing, painting, designing, illustrating, coloring, paste-up, rendering, composing, layout, lettering, sketching, and proper use of tools, equipment, and materials. Related courses in journalism, photography, graphic arts, and courses in English, mathematics, and history are included to increase the student's career opportunities. Some art background is desirable, but is not required.

Types of Jobs: Advertising artist, art director, layout artist, renderer, letterer, illustrator, mechanical man, general boardman.
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
ART	100	Basic Drawing	3
ENG	101	English Composition I	3
ED	01	Mechanical Drawing	2
HIS	103	Western Civilization I	3
GA	13	Layout and Design	4
PE	105	Physical Education	1
			16

SECOND SEMESTER

			Credits
ART	150	Basic Painting	3
GA	25	Process Camera	4
MAT	100	Introduction to Mathematics I	3
JO	11	Photography for Newsmen	3
PE	106	Physical Education	1
		Elective-Humanities/Social Science	3
			17

THIRD SEMESTER

			Credits
ART	200	Color and Design	3
ART	201	Lettering and Layout	3
ENG	211	Fundamentals of Speech	3
GA	14	Principles of Typographic Design	4
JO	14	Editing	3
			16

FOURTH SEMESTER

			Credits
ART	250	Media and Techniques	3
ART	251	Advertising Design	3
JO	30	Advertising	3
GA	27	Film Assembly and Platemaking	4
		Elective-General*	3
			16

ARCHITECTURAL TECHNOLOGY (AT) ASSOCIATE DEGREE/TWO YEARS

This program provides instruction in architectural drafting principles and practices and in creating residential and commercial working drawings. It includes design fundamentals, structural calculations and site planning.

Types of Jobs: Architectural draftsman, estimator, detailer, or specification writer in private practice, corporate departments, public bureaus, construction firms, landscape architecture firms, and engineering fields.
High School Subjects Required: Two years of algebra; one year of science. For exception, see pg. 9.

FIRST SEMESTER

			Credits
AT	11	Statics	3
AT	26	Architectural Graphics I	4
AT	32	Introduction to Historic Theory in Architecture	3
AT	45	Building Materials & Methods I	3
MAT	103	College Algebra	
		or	3/4
MAT	112	Calculus I	
PE		Physical Education	1
			17/18

SECOND SEMESTER

			Credits
AT	12	Structures I	2
AT	27	Architectural Graphics II	3
AT	28	Architectural Working Drawings	2
AT	66	Design I	4
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	104	College Trigonometry	
		or	3/4
MAT	211	Calculus II	
			17/18

THIRD SEMESTER

			Credits
AT	13	Structures II	2
AT	46	Building Materials & Methods II	3
AT	51	Building Equipment I	3
AT	62	Site Planning	3
AT	67	Design II	4
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
			18

FOURTH SEMESTER

			Credits
AT	14	Structures III	2
AT	52	Building Equipment II	3
AT	68	Design III	4
AT	75	Professional Administration & Contract Documents	3
AT	76	Seminar	3
PE		Physical Education	1
			16

CIVIL ENGINEERING TECHNOLOGY (CT) ASSOCIATE DEGREE/TWO YEARS

This program prepares the student to assist civil engineers in the planning, designing and construction of highways, railroads, bridges, airfields, buildings, and dams. Experience with modern equipment prepares the student to meet the challenge of recent technical developments.

Types of Jobs: Engineering technician, surveyor, inspector, draftsman, cartographer, design technician, and photogrammetrist.

High School Subjects Required: Two years of algebra; one year of science. For exception, see pg. 9.

*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
CT	05	Materials of Construction	2
CT	06	Engineering Drawing	3
CT	10	Introductory Surveying	2
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	103	College Algebra	3
PE		Physical Education	1
		Elective-Social Science	3
			17

SECOND SEMESTER

			Credits
CT	20	Plane Surveying	4
CT	23	Topographic Drawing and Cartography	3
ECO	11	Basic Economics	
		or	3
ECO	201	Principles of Economics	
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
MAT	104	College Trigonometry	3
PE		Physical Education	1
			17

THIRD SEMESTER

			Credits
CT	30	Route Surveying	4
CT	35	Highway Engineering Technology	3
CT	34	Statics	3
PHY	21	Physics-Mechanics	4
GEL	105	Physical Geology	4
			18

FOURTH SEMESTER

			Credits
CT	40	Advanced Surveying	3
CT	46	Photogrammetry	3
CT	44	Strength of Materials	
		or	3/4
GEL	106	Historical Geology	
CSC	100	Fortran IV Programming	3
		Elective-General*	3/4
			15/17

ENGINEERING DRAFTING TECHNOLOGY (ED) ASSOCIATE DEGREE/TWO YEARS

This program prepares the student to make a variety of engineering drawings and calculations. It provides a broad knowledge of mechanical drafting and engineering procedures, and background skills in mathematics, science and communication.

Types of Jobs: Mechanical detail and layout draftsman, engineering assistant or aide, checker, field department supervisor, or jobs in related areas such as planning, traffic safety, maintenance, and purchasing.
Required High School Subjects: Two years of algebra; one year of science. For exception, see pg. 9.

FIRST SEMESTER

			Credits
ED	10	Basic Drafting I (8 weeks)	4
ED	11	Basic Drafting II (8 weeks)	4
ED	12	Industrial Processes	2
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	103	College Algebra	3
PE		Physical Education	1
			17

SECOND SEMESTER

			Credits
ED	20	Power Transmission (8 weeks)	4
ED	21	Mechanisms (8 weeks)	4
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
MAT	104	College Trigonometry	3
PE		Physical Education	1
			15

THIRD SEMESTER

			Credits
ED	30	Detail & Assembly Drawing (8 weeks)	4
ED	31	Applied Drafting Techniques (8 weeks)	4
PHY	21	Physics-Mechanics	4
		Elective	3/4
			15/16

FOURTH SEMESTER

			Credits
ED	40	Advanced Detail I (8 weeks)	4
ED	41	Advanced Detail II (8 weeks)	4
PHY	22	Introduction to Metallurgy	4
		Elective** (Below)	3/4
			15/16

**Electives

ED	51	Descriptive Geometry	3
MAT	112	Calculus I	4
PHY	31	Physics-Electricity/Magnetism	4

GRAPHIC ARTS (GA) ASSOCIATE DEGREE/TWO YEARS

This program provides a firm understanding of highly diversified backshop operations along with management, marketing, and supervisory training. Practical laboratory work with modern graphic arts equipment gives a background in areas of composition, makeup, photo process, imposition and stripping, platemaking, presswork, and bindery.

Types of Jobs: Graphic arts executive training, in-plant supervisors, foreman, self-employed printer, marketing and technical sales service.
Required High School Subjects: Two years of algebra; one year of science. For exception, see pg. 9.
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
GA	13	Layout and Design	4
GA	14	Principles of Typographic Design	4
BM	13	Principles of Business	3
MAT	103	College Algebra	3
PE		Physical Education	1
			15

SECOND SEMESTER

			Credits
GA	25	Process Camera	4
GA	27	Film Assembly & Platemaking	4
ENG	101	English Composition I	3
MAT	104	College Trigonometry	
		or	3/4
		Elective	
PE		Physical Education	1
		Elective-General*	3
			18/19

THIRD SEMESTER

			Credits
GA	34	Printing Substrates and Finishing Operations	4
GA	38	Printing Presses	4
GA	42	Printing Estimating Practices	4
		Elective-Science** (Below)	3/4
			15/16

FOURTH SEMESTER

			Credits
GA	43	Printing Production Practices	4
GA	44	Independent Study	2
CSC	100	Fortran IV Programming	3
ENG	102	English Composition II	3
		Elective-General*	3/4
			15/16

**Electives in Science:

ESC	10	Environmental Science	3
PHY	111	Introductory Physics	4
PHY	21	Physics-Mechanics	4

MACHINIST GENERAL (MG) CERTIFICATE/TWO YEARS

This program offers training on machine tools that are common to most shops and emphasizes skill with machines. Classroom analysis of various jobs and machine operations increases the student's capabilities as a machinist. General mathematics, science, and communication skills are included to help meet the demands of modern technical developments.

Types of Jobs: Machinist, machine repair mechanic, setup man for production line work, skilled tool room mechanic.

FIRST SEMESTER

			Hours
MG	10	Basic Machine Shop I (8 weeks)	200
MG	15	Basic Machine Shop II (8 weeks)	200
ENG	01	Communications I	48
			448

SECOND SEMESTER

			Hours
MG	20	Basic Machine Shop III (8 weeks)	200
MG	25	Basic Machine Shop IV (8 weeks)	200
MAT	10	Technical Mathematics I	48
			448

THIRD SEMESTER

			Hours
MG	30	Advanced Machine Shop I (8 weeks)	200
MG	35	Advanced Machine Shop II (8 weeks)	200
		Optional Elective	0/48
			400/448

FOURTH SEMESTER

			Hours
MG	40	Advanced Machine Shop III (8 weeks)	200
MG	45	Advanced Machine Shop IV (8 weeks)	200
		Optional Elective	0/48
			400/448

MECHANICAL DRAFTING (MD) CERTIFICATE/TWO YEARS

This program emphasizes drafting skills which will enable the student to produce drawings for modern industry. The student will learn the latest industrial processes to improve and enhance his drawings and insure his efficiency.

Types of Jobs: Mechanical, sheet metal, piping, or electrical draftsman; related jobs such as estimator or field erection supervisor.

FIRST SEMESTER

			Hours
MD	10	Drafting Techniques I (8 weeks)	192
MD	11	Drafting Techniques II (8 weeks)	192
MAT	10	Technical Mathematics I	48
ENG	01	Communications I	48
			480

SECOND SEMESTER

			Hours
MD	20	Applied Drafting I (8 weeks)	192
MD	21	Applied Drafting II (8 weeks)	192
ED	12	Industrial Processes	32
MAT	20	Technical Mathematics II	48
			464

THIRD SEMESTER

			Hours
MD	30	Applied Drafting III (8 weeks)	192
MD	31	Applied Drafting IV (8 weeks)	192
PHY	20	Physics Survey	48
			432

FOURTH SEMESTER

			Hours
MD	40	Applied Drafting V (8 weeks)	192
MD	41	Applied Drafting VI (8 weeks)	192
		Optional Elective	0/48
			384/432

PRINTING (GP)
CERTIFICATE/ONE YEAR

This program examines the many complex operations and occupations involved in modern printing. All printing operations are covered to insure versatility in the field.

Types of Jobs: Cameraman, stripper, layout man, compositor, platemaker, and pressman.

FIRST SEMESTER

			Hours
GP	01	Composing I	128
GP	02	Photomechanical I	128
GP	03	Press and Bindery I	128
ENG	01	Communications I	48
		Optional Elective	0/48
			432/480

SECOND SEMESTER

			Hours
GP	04	Composing II	128
GP	05	Photomechanical II	128
GP	06	Press and Bindery II	128
MAT	10	Technical Mathematics I	48
		Optional Elective	0/48
			432/480

SIGN PAINTING (SP)
CERTIFICATE/TWO YEARS

This program provides practical experience in lettering skills, design, layout and type finishing of signs and showcards. Materials, equipment, and safety practices used in painting, building, and sign erecting are stressed.

Types of Jobs: Self-employment; work with sign painters, bottlers, outdoor advertisers, department stores, theatres, television stations, and truck fleets.

FIRST SEMESTER

			Hours
SP	01	Basic Alphabets	400
MAT	10	Technical Mathematics I	48
			448

SECOND SEMESTER

			Hours
SP	15	Letter Strokes & Showcard Layout	400
ENG	01	Communications I	48
			448

THIRD SEMESTER

			Hours
SP	16	Commercial Showcards	400
SP	12	Gold Leaf	
		or	64
SP	13	Silk Screen	
			464

FOURTH SEMESTER

			Hours
SP	04	Commercial Signs	400
SP	14	Billboard Pictorials	
		or	64
SP	13	Silk Screen	
		Optional Elective	0/48
			464/512

TECHNICAL ILLUSTRATION (TI)
ASSOCIATE DEGREE/TWO YEARS

This program prepares the student to interpret engineering drawings into three-dimensional illustrations. The program provides drawing and art skills, coupled with humanities, mathematics, and communications courses to enhance occupational opportunities.

Types of Jobs: Technical illustrator for industry, either in an engineering or publications department. In the engineering field you would produce clear, accurate pictures drawn from blueprints for engineers; illustrations for company literature; parts and sales catalogs; maintenance, repair, and assembly manuals, charts, and handbooks.
Required High School Subjects: Two years of algebra; one year of science. For exception, see pg. 9.

FIRST SEMESTER

			Credits
ED	10	Basic Drafting I (8 weeks)	4
ED	11	Basic Drafting II (8 weeks)	4
ART	100	Basic Drawing	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	103	College Algebra	3
			17

SECOND SEMESTER

			Credits
ED	20	Power Transmission (8 weeks)	4
ED	21	Mechanisms (8 weeks)	4
MAT	104	College Trigonometry	3
ART	150	Basic Painting	3
PE		Physical Education	1
			15

THIRD SEMESTER

			Credits
ED	12	Industrial Processes	2
ART	201	Lettering and Layout	3
GA	13	Layout and Design	4
GA	14	Principles of Typographic Design	4
PE		Physical Education	1
		Elective*	3
			17

FOURTH SEMESTER

			Credits
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
ART	250	Media and Techniques	3
GA	25	Process Camera	4
GA	27	Film Assembly and Platemaking	4
		Elective*	3/4
			17/18

*Electives

BM	13	Principles of Business	3
BM	35	Business Psychology	3
SOC	101	Introduction to Sociology	3
ECO	11	Basic Economics	3
PSY	101	General Psychology	3
ESC	10	Environmental Science	3
GEL	105	Physical Geology	4
GOV	201	American Government-National	3
GOV	202	State and Local Government	3
HIS	103	Western Civilization I	3
HIS	104	Western Civilization II	3
HIS	201	U.S. Survey I	3
ENG	211	Fundamentals of Speech	3
JO	14	Editing	3

TOOL DESIGN TECHNOLOGY (TD) ASSOCIATE DEGREE/TWO YEARS

This program provides instruction in drafting and tool production techniques and in the production of tool drawings. It emphasizes planning and making drawings of special mechanical devices (dies, gages, cutting tools, jigs, fixtures) ranging from simple hand tools to complex progressive dies. The student is taught to write programs for production jobs on tape-controlled machines.

Types of Jobs: Tool, machine, and product designer; numerical programmer, design draftsman, estimator, and systems program designer.

Required High School Subjects: Two years of algebra. For exception, see pg. 9.

*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
ED	10	Basic Drafting I (8 weeks)	4
ED	11	Basic Drafting II (8 weeks)	4
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
ED	12	Industrial Processes	2
MAT	103	College Algebra	3
PE		Physical Education	1
			17

SECOND SEMESTER

			Credits
ED	20	Power Transmission (8 weeks)	4
ED	21	Mechanisms (8 weeks)	4
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
MAT	104	College Trigonometry	3
PE		Physical Education	1
			15

THIRD SEMESTER

			Credits
TD	30	Tool Drafting (8 weeks)	4
TD	31	Fixture Design (8 weeks)	4
PHY	21	Physics-Mechanics	4
		Elective-General*	3/4
			15/16

FOURTH SEMESTER

			Credits
TD	40	Gage Design and Programming (8 weeks)	4
TD	41	Die Design (8 weeks)	4
PHY	22	Introduction to Metallurgy	4
		Elective-General*	3/4
			15/16

TOOLMAKING TECHNOLOGY (TT)
ASSOCIATE DEGREE/TWO YEARS

This program prepares the student to work with the engineer and shop superintendent or foreman. Laboratory and shop work provide training in machine operation and theory, blueprint reading, and mechanical drawing. Routing of jobs and the sequence of operations, as well as related courses in mathematics, science and economics are included to increase the student's advancement opportunities.

Types of Jobs: Toolmaker; experimental, numerical controller; production technician; administrative assistant.
Required High School Sujbects: Two years of algebra; one year of science. For exception, see pg. 9.

FIRST SEMESTER

			Credits
TT	10	Basic Metals I (8 weeks)	5
TT	15	Basic Metals II (8 weeks)	5
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
MAT	103	College Algebra	3
PE		Physical Education	1
			17

SECOND SEMESTER

			Credits
ED	01	Mechanical Drawing	2
TT	20	Automatic Machinery (8 weeks)	5
TT	25	Industrial Metrology (8 weeks)	5
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
MAT	104	College Trigonometry	3
			18

THIRD SEMESTER

			Credits
TT	30	Advanced Metals I (8 weeks)	5
TT	35	Advanced Metals II (8 weeks)	5
ECO	11	Basic Economics	
		or	3
ECO	201	Principles of Economics	
PHY	21	Physics-Mechanics	4
			17

FOURTH SEMESTER

			Credits
TT	40	Abrasive Machining (8 weeks)	5
TT	45	Heat Treatment & Cutter Grinding (8 weeks)	5
PHY	22	Introduction to Metallurgy	4
PE		Physical Education	1
			15

WELDING (WE)
CERTIFICATE/TWO YEARS

This program emphasizes theory and manipulative skills. It stresses developments and techniques in electric, oxyacetylene, and inert gas shielded methods of welding.

Types of Jobs: Welder, welder operator, fitter, specialist, foreman, supervisor, and inspector.

FIRST SEMESTER

			Hours
WE	15	Acetylene Welding	400
MAT	10	Technical Mathematics I	48
			448

SECOND SEMESTER

			Hours
WE	25	Electric Welding	400
ENG	01	Communications I	48
			448

THIRD SEMESTER

			Hours
WE	35	Inert Gas Welding	400
ED	05	Blueprint Reading	48
		Optional Elective	0/48
			448/496

FOURTH SEMESTER

			Hours
WE	45	Advanced Welding	400
		Optional Elective	0/48
			400/448

MATHEMATICS, SCIENCE, AND ALLIED HEALTH

DENTAL LABORATORY TECHNICIAN (DL)
Special Program
ASSOCIATE DEGREE/FIVE SEMESTERS
LEWISBURG FEDERAL PENITENTIARY

FIRST SEMESTER

			Credits
DL	12	Intro. to Dental Technology	5
DL	13	Dental Materials	3
MAT	100	Introduction to Mathematics I	3
ENG	101	English Composition I	3
			14

SECOND SEMESTER

			Credits
DL	22	Denture Techniques I	6
DL	23	Oral Anatomy	3
MAT	200	Introduction to Mathematics II	3
ENG	102	English Composition II	3
			15

THIRD SEMESTER

			Credits
DL	32	Denture Techniques II	6
DL	33	Odontography	4
		Related Courses as available	6
			16

FOURTH SEMESTER

			Credits
DL	42	Cast Partial Techniques I	6
DL	44	Crown and Bridge I	5
		Related Courses as available	6
			17

FIFTH SEMESTER

			Credits
DL	50	Cast Partial Techniques II	6
DL	51	Crown and Bridge II	5
			11

FOOD AND HOSPITALITY MANAGEMENT (FH)
ASSOCIATE DEGREE/TWO YEARS

In preparing the student to become a manager of a food operation, hotel or motel, this program provides skills in areas of business and personnel management as well as food preparation and supervision. It provides practical experience through directed work and other community contacts.

Types of Jobs: Food service supervisory positions in restaurants, clubs, hospitals, nursing homes, child care centers, schools, and colleges; front office or housekeeping manager in hotels and motels.

*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
FH	10	Introductory Foods	3
FH	11	Nutrition	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
BM	13	Principles of Business	3
PSY	101	General Psychology	3
PE		Physical Education	1
			16

SECOND SEMESTER

			Credits
FH	20	Quantity Food Preparation	3
FH	21	Menu Planning & Cost Control	3
ENG	12	Language & Composition II	
		or	3
ENG	102	English Composition II	
FH	22	Front Office Management and Housekeeping	3
PE		Physical Education	1
		Elective-General*	3
			16

THIRD SEMESTER

			Credits
FH	31	Hospitality Management and Theory	3
FH	32	Purchasing, Storage, and Sanitation	3
FH	33	Hospitality Merchandising	3
BM	21	Business Communications	3
		Science Elective	3/4
			15/16

PRACTICUM

FH	30	Job Experience (120 Hrs.)	No Credit

FOURTH SEMESTER

			Credits
FH	40	Equipment and Layouts	3
FH	41	Supervision, Work Simplification and Incentives	3
FH	42	Beverage Management & Catering	3
BA	11	Elementary Accounting	3
		Elective-General*	3
			15

FOOD SERVICE MANAGEMENT (FM)
Special Program
LEWISBURG FEDERAL PENITENTIARY

FIRST SEMESTER (16 weeks)

			Credits
FH	11	Nutrition	3
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
FH	21	Menu Planning & Cost Control	3
FH	40	Equipment and Layouts	3
			12

SECOND SEMESTER (16 Weeks)

			Credits
FH	32	Purchasing, Storage, and Sanitation	3
FH	33	Hospitality Merchandising	3
FH	41	Supervision-Work Simplification and Incentives	3
BA	12	Accounting I	
		or	3
BUS	201	Principles of Accounting I	
			12

OPERATING ROOM TECHNICIAN (OT)
CERTIFICATE/ONE YEAR

Completion of this program enables the student to function as a skilled technician whose duties include care, preparation, and maintenance of sterile and unsterile supplies, and assisting registered nurses in the preparation of operating rooms for surgery in "scrub in" and "circulating" assignments.

Types of Jobs: Member of surgical team in hospital operating rooms and central service departments or other areas closely concerned with the principles and practice of surgical asepsis.

FIRST SEMESTER

			Hours
OT	02	Body Structure & Function	80
OT	11	Operating Room Techniques I	320
		Optional Elective	0/48
			400/448

SECOND SEMESTER

			Hours
OT	20	Operating Room Techniques II	64
OT	21	Supervised Clinical Experience	416
			480

PRACTICAL NURSING (NU)
CERTIFICATE/FIFTY-TWO WEEKS

Classroom instruction in theory and basic skills is given on the WACC campus. Practical experiences in actual patient care settings are obtained at the two local hospitals (Williamsport Hospital and Divine Providence Hospital) and at the Lysock View Home and Hospital. Under the guidance of college instructors at the cooperating institutions, students gain experience in the care of adult patients and in maternal and child health nursing. Mental health concepts, pharmacology, and diet therapy are integrated throughout the program.

Types of Jobs: Employment in hospitals, convalescent homes, visiting nurses association, doctor's office, private duty.

FIRST SEMESTER-16 Weeks of 27 Hours Each

			Hours
NU	10	Foundations of Nursing	304
NU	01	Nursing Relationships	48
NU	02	Scientific Principles Relating to Nursing	96
			448

SECOND SEMESTER-15 Weeks of 33 Hours Each

			Hours
NU	11	Medical-Surgical Nursing Elem.	225
NU	12	Parental and Child Health	270
			495

THIRD SEMESTER-15 Weeks of 33 Hours Each

			Hours
NU	13	Medical-Surgical Nursing Inter.	495
			495

Theory – 600 Hours 2/5 Ratio
Practicum – 912 Hours 3/5 Ratio
Total – 1,512 Hours

PRACTICUM

NU	14	Practicum	75
			75

Thirty hours per week.
VACATION-Twenty school days.

RADIOLOGIC TECHNOLOGY (RT) ASSOCIATE DEGREE/TWO YEARS

This program includes courses in anatomy, physiology, physics, medical terminology, professional ethics, and radiologic equipment and safety. Practical experience with sick and injured patients, under qualified technical supervision in local hospitals, will be an important aspect of training. Students are exempt from the Physical Education Program.

Types of Jobs: Hospital facilities, doctors and radiologists in private practice, civilian and military government agencies, industry.

An additional 960 hours of internship are required before you are eligible to take the registry examinations to qualify as a registered radiologic technician. Arrangements for this internship will be made with cooperating hospitals. The Associate Degree will be awarded after the summer internship is served.

Required High School Subjects: Two years of algebra. For exception, see pg. 9.

FIRST SEMESTER

			Credits
BIO	105	Anatomy & Physiology of Man I	4
ENG	101	English Composition I	3
RT	10	Radiologic Technology I	5
MAT	103	College Algebra	3
ST	30	Medical Terminology	3
			18

SECOND SEMESTER

			Credits
BIO	106	Anatomy & Physiology of Man II	4
ENG	102	English Composition II	3
RT	11	Radiologic Technology II	7
MAT	104	College Trigonometry	3
			17

THIRD SEMESTER

			Credits
PHY	111	Introductory Physics	4
RT	12	Radiologic Technology III	10
		Elective-Psychology* (Below)	3
			17

FOURTH SEMESTER

			Credits
PHY	113	Radiation Physics	3
RT	13	Radiologic Technology IV	10
SOC	101	Introduction to Sociology	3
			16

SUMMER SESSION

			Credits
RT	14	Internship	5

*Psychology Electives:

PSY	101	General Psychology	3
PSY	205	Abnormal Psychology	3
PSY	210	Social Psychology	3

TRANSPORTATION TECHNOLOGIES

AUTO BODY REPAIRMAN (AB) CERTIFICATE/TWO YEARS

The student masters trade tools and equipment through the study of theory and practical experience in sheet metal repairs, sanding, and application of fillers, primers, and color coatings. Shrinking, stretching, welding, panel installation, interior trim, and glass replacement are also stressed. The student gains skills in frame and steering alignment as well as damage estimating and repair.

Types of Jobs: Shop assignments to any of the areas mentioned insurance companies, repair shops, dealerships, self-employment.

FIRST SEMESTER

			Hours
AB	11	Auto Body Repair I (8 weeks)	192
AB	12	Auto Body Repair II (8 weeks)	192
MAT	10	Technical Mathematics I	48
			432

SECOND SEMESTER

			Hours
AB	21	Auto Body Repair III (8 weeks)	192
AB	22	Auto Body Repair IV (8 weeks)	192
ENG	01	Communications I	48
			432

THIRD SEMESTER

			Hours
AB	51	Auto Body Repair V (8 weeks)	192
AB	52	Auto Body Repair VI (8 weeks)	192
		Optional Elective	0/48
			384/432

FOURTH SEMESTER

			Hours
AB	61	Auto Body Repair VII (8 weeks)	192
AB	62	Auto Body Repair VIII (8 weeks)	192
		Optional Elective	0/48
			384/432

AUTOMOTIVE MECHANICS (AM) CERTIFICATE/TWO YEARS

Theory and manipulative skills, as practiced with modern tools and equipment, are stressed in a program which teaches the student to service and repair light commercial and passenger vehicles. Proficiency is gained in working with power train, steering, brakes, ignition, carburetion, engines, and electrical components and assemblies.

Types of Jobs: General auto mechanic in a dealership, independent garage, fleet operation, service station, self-employed.

FIRST SEMESTER

			Hours
AM	11	Automotive Mechanics I	192
AM	12	Automotive Mechanics II	192
MAT	10	Technical Mathematics I	48
			432

SECOND SEMESTER

			Hours
AM	21	Automotive Mechanics III	192
AM	22	Automotive Mechanics IV	192
ENG	01	Communications I	48
			432

THIRD SEMESTER

			Hours
AM	51	Automotive Mechanics V (8 weeks)	192
AM	52	Automotive Mechanics VI (8 weeks)	192
		Optional Elective	0/48
			384/432

FOURTH SEMESTER

			Hours
AM	61	Automotive Mechanics VII (8 weeks)	192
AM	62	Automotive Mechanics VIII (8 weeks)	192
		Optional Elective	0/48
			384/432

AUTOMOTIVE TECHNOLOGY (AU)
ASSOCIATE DEGREE/TWO YEARS

This program presents the advanced theory of operation of automotive systems and components. The theory of operating principles is applied to diagnose both real and hypothetical malfunctions. Service, repair and test procedures with modern equipment and special tools are emphasized. Service specialization and business management may be elected. (On completion of this program the student may transfer to a four-year institution.)

Types of Jobs: Dealership service specialist, assistant service manager, skilled jobs in the automotive manufacturing industry, service equipment representative, rebuilding shop assembler, repair shop operator, parts department manager.
Required High School Subjects: One course in algebra for career students; two years of algebra for transfer students. For exception, see pg. 9.
*GENERAL ELECTIVES are courses chosen from outside your Program of concentration.

FIRST SEMESTER

			Credits
AU	50	Fuel & Electrical Systems	7
AU	53	Engines	7
PE		Physical Education	1
		Elective-Math**	3
			18

SECOND SEMESTER

			Credits
AU	51	Power Train	7
ENG	11	Language & Composition I	
		or	3
ENG	101	English Composition I	
ED	01	Mechanical Drawing	2
PE		Physical Education	1
		Elective-Math***	3
			16

THIRD SEMESTER

			Credits
AU	52	Brakes, Chassis, and Suspension	7
ENG	13	Technical Writing	3
BM	13	Principles of Business	3
PHY	20	Physics Survey	3
			16

FOURTH SEMESTER

			Credits
AU	54	General Repair Service	3
AU	55	State Inspection Repairs	3
AU	56	Service Specialty	7
		Elective-General*	3
			16

NOTE: Transfer students who are seeking a four-year degree may select alternate courses upon approval of the Dean.

**For two-year (career) students:
MAT 25 Intermediate Algebra

For transfer students:
MAT 103 College Algebra
MAT 104 College Trigonometry
MAT 109 Applied Calculus
MAT 112 Calculus I

***For two year (career) students:
MAT 20 Technical Mathematics II
BM 23 Business Mathematics

For transfer students:
MAT 104 College Trigonometry
MAT 109 Applied Calculus
MAT 211 Calculus II

AVIATION MAINTENANCE TECHNICIAN (AC) CERTIFICATE/TWO YEARS

In preparing to become an aircraft and powerplant maintenance technician, the student learns the theories of, and gains practical skills in, such areas as aircraft powerplant maintenance and trouble shooting. This program is approved and licensed by the Federal Aviation Administration, and as a graduate the student will be qualified to take the examinations for the Airframe and Powerplant Maintenance Certificate.

Types of Jobs: Maintenance technician for airlines, fixed base operators, and manufacturer's services.

FIRST SEMESTER

			Hours
AC	11	General Airframe and Powerplant	408
ED	04	Aircraft Drawings	64
MAT	15	General Aviation Mathematics	48
			520

SECOND SEMESTER

			Hours
AC	26	Powerplant	480
		Optional Elective	0/48
			480/528

THIRD SEMESTER

			Hours
AC	32	Basic Airframe	480
			480

FOURTH SEMESTER

			Hours
AC	42	Advanced Airframe and Powerplant	480
			480

DIESEL MECHANICS (DM) CERTIFICATE/TWO YEARS

This program presents theories and develops manipulative skills in the care of diesel-powered highway vehicles, industrial and marine engines, and commercial powerplants. Some specialization is available in fuel injection service, engine repair and rebuilding, power train, brakes, steering, and chassis work.

Types of Jobs: Heavy duty truck mechanic for truck dealership, independent garage, truck fleet, or contractor. Industrial engine mechanic in mining, quarrying, construction equipment, or marine waterways fleet. Also field service representative for diesel engine manufacturer or distributor.

FIRST SEMESTER

			Hours
DM	11	Basic Diesel Mechanics I (8 weeks)	192
DM	12	Basic Diesel Mechanics II (8 weeks)	192
MAT	10	Technical Mathematics I	48
			432

SECOND SEMESTER

			Hours
DM	21	Diesel Mechanics I (8 weeks)	192
DM	22	Diesel Mechanics II (8 weeks)	192
ENG	01	Communications I	48
			432

THIRD SEMESTER

			Hours
DM	51	Diesel Mechanics III (8 weeks)	192
DM	52	Diesel Mechanics IV (8 weeks)	192
		Optional Elective	0/48
			384/432

FOURTH SEMESTER

			Hours
DM	61	Diesel Mechanics V (8 weeks)	192
DM	62	Diesel Mechanics VI (8 weeks)	192
		Optional Elective	0/48
			384/432

ASSOCIATE OF ARTS

GENERAL STUDIES

The minimum requirements for the Associate of Arts are 64 credits of courses at the 100 level, or above, as follows:

	Credits
English/Humanities	9
Social Sciences	9
Mathematics	6
Natural Sciences	6-8
Physical Education & Health	4
	34-36
Electives (with suggested specialized concentration)	30
	64-66

INDIVIDUAL STUDIES

The minimum requirements for this program are:

Sixty credits of Associate Degree level work with the folowing exceptions:

Full-time students must complete four credits of Physical Education, bringing the total number of required credits to 64; part-time students may be exempted from this requirement.

Electives: Fifteen credits may be selected from Applied Science courses. These courses need not be at the 100 level.

If later you should want to earn an Associate of Arts degree in a specific program, you would only have to re-matriculate and complete the minimum number of courses required for that particular program.

COLLEGE AND UNIVERSITY TRANSFER PROGRAMS

These programs are designed to be transferable into four-year college degree programs. The transfer counselor at WACC and the student's faculty advisor can help the student design a program to meet his/her needs and fulfill specific transfer requirements. The student should meet the requirements for an Associate of Arts degree.

Programs are available in the following areas:

Business and Computer Science
Division Director, Donald Bergerstock

Business Administration

Communications, Humanities, and Social Sciences
Division Director, Charles Q. Simcox

Economics
English
History
Liberal Arts/Humanities
Preparation for Elementary School Teaching
Preparation for Secondary School Teaching
Preparation for Social Work
Psychology
Social Science
Sociology

Mathematics, Science, and Allied Health
Division Director, Robert G. Bowers

Biology
Chemistry
Home Economics
Mathematics
Physics

Pre-Professional

The following specialized programs can be started at WACC and then completed at a four-year college. The transfer counselor at WACC and the student's faculty advisor can help the student design a program to meet his/her needs and fulfill specific transfer requirements. The student should meet the requirements for an Associate of Arts degree.

Pre-Dentistry
Advisor: Dr. Robert G. Bowers

To be admitted to a college of dentistry, a student should have a minimum of two years work in Liberal Arts which includes at least 60 semester hours. His course selections should include strong emphasis in chemistry, physics, and biology. The Dental Aptitude Test is usually required of an applicant for admission to dental school.

Pre-Law
Advisor: Dr. Charles Q. Simcox

A college of law usually has no specific pre-legal course requirements, but a prospective law student should choose his pre-legal subjects so as to achieve a well-rounded general education which will be relevant to his future career interests.

A four-year college is usually required to enter the college of law, as is the Law School Admissions Test, and each law school determines its own requirements for grade point average. It is recommended that a student meet the requirements of either the Liberal Arts or Business Administration curriculum.

Pre-Medicine
Advisor: Dr. Robert G. Bowers

A student desiring admission to a college of medicine should have a Bachelor of Science or Bachelor of Arts degree or at least 90 hours of college work and be eligible for full senior status in college. His chosen courses should have emphasis in biology, chemistry, and physics. The Medical College Admissions Test is required by most medical schools.

Pre-Ministerial Study
Advisor: Dr. Charles Q. Simcox

The American Association of Theological Schools strongly recommends a Liberal Arts course as the best preparation for theological training. The first two years of pre-ministerial work can be taken at WACC, with electives chosen according to the requirements of the four-year college the student wishes to attend.

Pre-Nursing
Advisor: Mrs. Cunningham

A student who wishes to get a Bachelor of Science degree with a major in nursing may take the first and/or second years of work in Liberal Arts and should be especially careful in selecting the science courses.

Pre-Occupational Therapy
Advisor: Dr. Charles Q. Simcox

The first two years of occupational therapy can be taken primarily in Liberal Arts with some specialization according to the requirements stated in the four-year college catalog.

Pre-Optometry
Advisor: Dr. Robert G. Bowers

Admittance to a college of optometry requires a minimum of 60 semester or 90 quarter hours and a minimum of 2.5 for all college courses attempted.

These courses will emphasize biology, chemistry and mathematics. Automatic admission is not implied by the attainment of the minimum requirements set forth in the program.

Pre-Pharmacy
Advisor: Dr. Robert G. Bowers

One year of this curriculum may be taken in Liberal Arts and the next four years in a college of pharmacy. Chemistry and mathematics courses should be included in chosen courses.

Pre-Veterinary Medicine
Advisor: Dr. Robert G. Bowers

A student should usually present 60 semester hours of acceptable college credit to be admitted to a college of veterinary medicine. These courses may be taken in Liberal Arts and should include emphasis in chemistry, biology and physics.

COURSE DESCRIPTIONS

Courses are listed alphabetically under the name of the subject—Accounting, Architectural Technology, Automotive, Aviation, Biology, Broadcasting, etc..

The letters and numbers preceding the names of the courses are an identification code for recording purposes.

If a particular course has a prerequisite or corequisite, that fact is indicated in italics at the end of the course description.

The number immediately following the description of the course content indicates the number of credits. "3 Cr." or "192 Hrs." received for the course. Within the parentheses, the number before the dash indicates lecture hours and the number after the dash indicates laboratory or shop hours.

SPECIAL TOPICS COURSES: (1-5 credits)

BTT 299 BUILDING TECHNOLOGIES
BCS 299 BUSINESS & COMPUTER SCIENCE
CHS 299 COMMUNICATIONS, HUMANITIES & SOCIAL SCIENCES
ESD 299 EARTH SCIENCE
EED 299 ELECTRICAL/ELECTRONICS
EDT 299 ENGINEERING & DESIGN TECHNOLOGIES
MSH 299 MATHEMATICS, SCIENCE & ALLIED HEALTH
TTD 299 TRANSPORTATION TECHNOLOGIES

COURSE DESCRIPTION:

Special attention to particular abilities, interests of students, and particular topics. Individual guidance in advanced studies. Admission by permission of the instructor, Division Director, and Dean of Postsecondary Instructional Services.

ACCOUNTING (BA)

BA 11
ELEMENTARY ACCOUNTING
Basic course in accounting for students majoring in Secretarial Science and non-business areas. Develops those accounting practices and theories which will prepare the student for employment in, or operation of, a sole proprietorship form of business. 3 Cr. (3-0).

BA 12
ACCOUNTING I
Introduction to elementary accounting principles. Includes the procedures, terms, theories, and practical applications of proprietorship accounting. Develops the foundation of accounting principles necessary for success in advanced courses and helps prepare the student for employment in business. 3 Cr. (3-0).

BA 22
ACCOUNTING II
Continues the development of accounting principles as applied to the different forms of business organization. Emphasizes corporate and partnership accounting. 3 Cr. (3-0). *Prerequisite: BA 12 or Division permission.*

BA 30
MANAGERIAL ACCOUNTING
Presents the analysis tools needed to make decisions based on financial information. Emphasizes the organization of data for decisions, development of sound measurements, and the use of accounting for control and evaluation of economic activity. De-emphasizes the use of financial accounting using the transaction recording process. Course assumes the student has a thorough knowledge of accounting principles and is prepared to analyze the financial summarizations. 3 Cr. (3-0). *Prerequisite: BA 12 or Division permission.*

BA 32
INTERMEDIATE ACCOUNTING I
Detailed in-depth study of financial statements and the fundamental accounting processes. Includes an examination of working capital. 3 Cr. (3-0). *Prerequisite: BA 22 or Division permission.*

BA 42
COST ACCOUNTING
Includes transactions of a manufacturing business, finding unit costs, finding total cost after processing, and profit through distribution. Three types of cost accounting systems will be discussed in detail: Job Cost, Process Cost, and Standard Cost. 3 Cr. (3-0). *Prerequisite: BA 22.*

BA 44
INTERMEDIATE ACCOUNTING II
Deals with noncurrent assets and liabilities, stockholders' equity, and various analytical accounting processes. 3 Cr. (3-0). *Prerequisite: BA 32 or Division permission.*

BA 45
INCOME TAX ACCOUNTING
Familiarizes students with the different rules and regulations regarding Federal and Pennsylvania state income taxes. Tax deductions, credits, exemptions, rates, computation of all types of taxes, and the various forms that students should be familiar with are stressed. 3 Cr. (3-0).

BA 46
AUDITING
Offers a thorough knowledge of auditing through the application of principles and adherence to auditing standards. Internal controls, the field of auditing and public accounting, audit techniques, audit work papers, verification of accounts, reporting the audit and internal auditing are discussed. 3 Cr. (3-0). *Prerequisites: BA 12 and BA 22.*

ADVERTISING ART (AR)

ART 100
BASIC DRAWING
The basic concepts of observing and perceiving objects in space and drawing them in various ways using a variety of techniques. 3 Cr. (1-6).

ART 150
BASIC PAINTING
An introduction to painting with emphasis on color, value, form, texture. Emphasis is placed on representational painting but experimentation is encouraged. 3 Cr. (1-6).

ART 200
COLOR AND DESIGN
Introduction to two dimensional design and color. Studies from nature and the properties of color, shape, form and space leading to the discovery of individual solutions to problems in two dimensional design. 3 Cr. (1-6).

ART 201
LETTERING AND LAYOUT
A study of the elements and design of layouts for advertising art. The history, anatomy and design of letters, emphasizing the proper use of lettering in advertising. 3 Cr. (1-6).

ART 250
MEDIA AND TECHNIQUES
Lecture and demonstrations illustrate and describe the various media and techniques used in advertising art, such as gouache, watercolor, wash, pastel, pen and ink, scratchboard, airbrush and art aids. 3 Cr. (1-6). *Prerequisite: Consultation with professor.*

ART 251
ADVERTISING DESIGN
Projects in poster design, brochures, illustration and other forms of advertising and editorial media including basic techniques and processes in use in preparation of advertising and graphic art for the printer. The following skills are involved: illustration, paste-up, specifying type, overlays, lettering, and layout. 3 Cr. (1-6). *Prerequisite: Consultation with professor.*

ARCHITECTURAL TECHNOLOGY (AT)

AT 11
STATICS
Algebraic and graphic determination of loads, reactions, shear and moment, deflection, loading and buckling, truss design, properties of areas. 3 Cr. (3-0).

AT 12
STRUCTURES I
Theory and design of wood and timber; identification, characteristics and classifications of wood, working stresses; design and beams, columns, joints, rafters, plank, laminated sections; timber connections, fastenings and their working properties; laminated lumber, shapes. 2 Cr. (2-0).

AT 13
STRUCTURES II
Theory and design of steel beams, columns, and connections, (welded, bolted and riveted) for moment, shear, slope, deflections, axial and eccentric loads; the AISC Handbook; bearing capacity of masonry walls, design of bearing plates, steel joints, space frames and trusses. 2 Cr. (2-0).

AT 14
STRUCTURES III
Reinforced concrete building, theory and design of slabs, beams, compression steel, columns, prestressed concrete, footings, walls; floors; quantitative study of structural forms from the view of material development. 2 Cr. (2-0).

AT 25
BASIC ARCHITECTURAL DRAFTING
Fundamentals of architectural drawing for woodworking technology; use and care of drawing instruments and media, lettering, orthographic projection principles, preliminary drawing and sketching, preparation of working drawings, exterior and interior finish work, detailing cabinet and mill work. 96 Hrs. (1-5).

AT 26
ARCHITECTURAL GRAPHICS I
Basic architectural graphic media, projection drawings; axonometrics and perspective; color and texture; introduction to the architectural model; basic vocabulary of architectural drawings; composition, space, form, value, texture, shades. shadows 4 Cr. (1-9).

AT 27
ARCHITECTURAL GRAPHICS II
Architectural rendering in various media; black and white, color problems; emphasis on development of techniques, style, presentation. 3 Cr. (1-6).

AT 28
ARCHITECTURAL WORKING DRAWINGS
Laboratory practice in producing a complete set of architectural working drawings; emphasis on preparation, technique, content, thoroughness, continuity, lettering, presentation quality. 2 Cr. (0-6).

AT 32
INTRO. HISTORIC THEORY IN ARCHITECTURE
Introductory course in architecture giving an overview of the curriculum and its relation to the profession. Discussions of architectural employment and further architectural education. Surveys architectural ideas as an introduction to historical theory of building, planning, and urban development from the emergence of man to the present day. 3 Cr. (3-0).

AT 45
BUILDING MATERIALS AND METHODS I
Study of typical materials of residential construction; their production, properties, use, performance in combinations. 3 Cr. (3-0).

AT 46
BUILDING MATERIALS AND METHODS II
Subsurface exploration and foundations, water and dampproofing; methods and materials for construction of masonry, concrete walls, slabs; wall, floor, and roof systems; the curtain wall; fireproofing; building codes; architectural hardware. 3 Cr. (3-0). ***Prerequisite: AT 45***

AT 51
BUILDING EQUIPMENT I
Theory and design of plumbing, heating, air-conditioning, and control systems; sources and design of water supply; sanitary and storm systems; computation of plumbing, heating, and cooling loads. 3 Cr. (3-0).

AT 52
BUILDING EQUIPMENT II
Theory and design of electrical service distribution systems; selection of electrical equipment, fixtures; electrical heating design; theory and measurement of light, sound; vertical transportation systems; sound systems. 3 Cr. (3-0).

AT 62
SITE PLANNING
Theories, methods and equipment for the measurement of distances, angles, differences in elevation; theory of error; computations; adjustment of data; mapping application of surveying methods to construction, boundaries; emphasis on production and interpretation of maps for selection of sites, planning of subdivisions, preparation of master plans; examination of sites for building; elements of architectural earth sculpture, water, subsurface conditions, landscaping. 3 Cr. (2-3).

AT 64
ADVANCED DESIGN I
Continuation of the design process; individual projects to develop student's ability to coordinate the design concept with construction. 4 Cr. (1-9).

AT 65
ADVANCED DESIGN II
Continuation of AT 64. 4 Cr. (1-9).

AT 66
DESIGN I
Fundamental relationships of function, space, time, light, needs of man; introduction to the design process; collaborative work; emphasis on methods of work; presentation of architectural ideas by preliminary drawings; working drawing models. 4 Cr. (1-9).

AT 67
DESIGN II
Problems of differential space organizations; specialized spacial forms; relationship of space, form, structure, equipment, light; applications of elements of detailing; design of load bearing and curtain walls relating to total design; problems of tall buildings, building groups, associated site planning; architectural character and aesthetics; correlation of design with associated methods of construction; analysis, development of programs, collaborative work; advanced problems of form, visual expression; emphasis on methods of work; presentation of architectural ideas by preliminary drawings; working drawings; models. 4 Cr. (1-9). ***Prerequisite: AT 66.***

AT 68
DESIGN III
Final course in design sequence; coordinates the design process with administrative procedures encountered in architectural practice. Emphasizes design and design development. Utilizes knowledge and skills acquired in previous and concurrent design and technical courses. Assigned problems emphasize quality and understanding, with a systematic, uniform approach used to develop and explain building technology. 4 Cr. (1-9).

AT 75
PROFESSIONAL ADMINISTRATION AND CONTRACT DOCUMENTS
Architectural registration, professional organization, ethics; forms of architectural service; contract law; bonds; liens; codes; insurance; bidding procedures; specification writing; supervision and administration of construction operation. 3 Cr. (3-0).

AT 76
SEMINAR
Study of architectural ideas, theories, current problems; nature of architect as leader; human activity; relation to man's physical, social, intellectual and spiritual nature; influence of tradition, science, technology. 3 Cr. (3-0).

AUTOMOTIVE (AB, AM, & AU)

AB 11
AUTO BODY REPAIR I (8 weeks)
Basic theory and practice in trade fundamentals; body and chassis work; sanding, masking. 192 Hrs. (3-21).

AB 12
AUTO BODY REPAIR II (8 weeks)
Metal work; gas and electric welding, stretching and shrinkage of metal; fasteners; riveting. 192 Hrs. (3-21).

AB 21
AUTO BODY REPAIR III (8 weeks)
Used car reconditioning; interior trim work. 192 Hrs. (3-21). *Prerequisites: AB 11 and AB 12.*

AB 22
AUTO BODY REPAIR IV (8 weeks)
Panel installation and alignment; front and rear suspension and alignment; frame alignment. 192 Hrs. (3-21). *Prerequisite: AB 21.*

AB 51
AUTO BODY REPAIR V (8 weeks)
Metal working and filling, color requirements. 192 Hrs. (3-21). *Prerequisites: AB 11 and AB 12.*

AB 52
AUTO BODY REPAIR VI (8 weeks)
Color matching; spray painting; working "totals." 192 Hrs. (3-21). *Prerequisites: AB 11 and AB 12.*

AB 61
AUTO BODY REPAIR VII (8 weeks)
Electrical practice; special trade tools and equipment; damage estimates; customizing. 192 Hrs. (3-21). *Prerequisites: AB 11 and AB 12.*

AB 62
AUTO BODY REPAIR VIII (8 weeks)
Customizing; stripping; vinyl tops; "felting"; custom painting, estimating 192 Hrs. (3-21). *Prerequisites: AB 11 and AB 12.*

AM 11
AUTOMOTIVE MECHANICS I
Power Train. Theory of operation of standard transmissions, clutches, differentials, and automatic transmission. Rebuild procedures on selected standard transmissions and differentials. Minor service of automatic transmissions. Universal joint and rear axle service. Basic service of air conditioning systems. 192 Hrs. (3-9).

AM 12
AUTOMOTIVE MECHANICS II
Brakes and Suspension. Theory of hydraulics, braking action, and suspension systems. Wheel alignment and balance. Steering gears and geometry. Repair procedures for brake and suspension systems. 192 Hrs. (3-9).

AM 21
AUTOMOTIVE MECHANICS III
Fuel and Electrical. Basic theory of electricity. Operation and service of ignition, charging, cranking, lighting, and accessory circuits. Operation and service of emission control systems and fuel systems components, with emphasis on carburetion. Introduction to principles of heating and ventilating systems. 192 Hrs. (3-9).

AM 22
AUTOMOTIVE MECHANICS IV
Engines. Theory of internal combustion heat engines Service and overhaul procedures. Cooling system service. Valve refacing and reseating. Hand tools and basic machine tools. 192 Hrs. (3-9).

AM 51
AUTOMOTIVE MECHANICS V (8 weeks)
Application of basic service and repair procedures. Engine, chassis, and power train service with emphasis on fuel and electrical systems and engine service. Electronic engine diagnosis. 192 Hrs. (3-21). *Prerequisite: 384 Hrs. of AM.*

AM 52
AUTOMOTIVE MECHANICS VI (8 weeks)
Continuation of AM 51. Basic service and repair procedures. Emphasis on power train, suspension, and brake service. Methods of state inspection. 192 Hrs. (3-21). *Prerequisite: AM 51.*

AM 61
AUTOMOTIVE MECHANICS VII (8 weeks)
General automotive repairs. Troubleshooting, diagnosis and repair of common malfunctions. Selected units for rebuild and overhaul. Chassis dynamometer testing. 192 Hrs. (3-21). *Prerequisite: 384 Hrs. of AM.*

AM 62
AUTOMOTIVE MECHANICS VIII (8 weeks)
Continuation of AM 61. General automotive repairs. Common repair jobs on domestic vehicles. State inspection operations and repairs. 192 Hrs. (3-21). *Prerequisite: AM 61.*

AU 50
FUEL & ELECTRICAL SYSTEMS
Fundamentals of electricity-electron theory. Ohm's law, and basic circuitry. Principles of operation and service of ignition, charging, and cranking circuits. Lighting and accessories circuits. Operation and service of the fuel system. Principles of carburetion and fuel injection. Emphasis on carburetor service. Air conditioning control circuits. 7 Cr. (4-9).

AU 51
POWER TRAIN
Operating principles and repair procedures for the clutch, standard transmission, U-joints, and differential. Fundamental theory of torque converters and planetary gearing. Minor service procedures for automatic transmissions. 7 Cr. (4-9).

AU 52
BRAKES, CHASSIS AND SUSPENSION
Wheel alignment and balancing. Types of suspension systems. Suspension repairs. Drum and disc brake operating principles. Brake service procedures. Fundamental principles of hydraulic systems. Standard and power steering adjustments and service. 7 Cr. (4-9).

AU 53
ENGINES
Operation of two and four-stroke spark ignition engines. Service procedures on common automobile engines including valve jobs, engine overhaul, and cooling system repairs. Theory of gas cycles in automotive engines and air conditioners. Air conditioner repair and charging procedures. 7 Cr. (4-9).

AU 54
GENERAL REPAIR SERVICE
Application of service procedures to common repair jobs such as tune-up, brake relining, electrical service, and cooling system repairs. 3 Cr. (1-6). *Prerequisites: AU 50, AU 51, AU 52 and AU 53.*

AU 55
STATE INSPECTION REPAIRS
Study of the state code book. Application and demonstration of checking procedures to actual work. Regulations governing certification of state inspection stations and personnel. 3 Cr. (2-3). *Prerequisites: AU 50, AU 52.*

AU 56
SERVICE SPECIALTY
Two topics will be selected from the following service areas: automatic transmission overhaul, front end work, foreign car service, or service management techniques. 7 Cr. (4-9). 208 Hrs. *Prerequisites: AU 50, AU 51, AU 52.*

AVIATION (AC)

AC 11
GENERAL AIRFRAME AND POWERPLANT
Basic concepts of aircraft, powerplant, aircraft systems maintenance, aircraft, powerplant nomenclature; theory of operation, weight, balance, blueprint reading; mechanics privileges, limitations; publications, aircraft forms. 408 Hrs. (196-212)*

AC 26
POWERPLANT
Theory, construction, nomenclature, operation of internal combustion engines; trade tools; theory, maintenance of fuel; electrical, ignition, lubrication, jet, reciprocating propulsion systems. 480 Hrs. (188-292)*. *Prerequisite: AC 11.*

AC 32
BASIC AIRFRAME
Theory of flight; aircraft control systems; basic woodworking, hovering, skills in finishing, sheet metal, welding, rigging, assembly; operation and theory of aircraft electrical, hydraulic, pneumatic, air conditioning, fuel systems. 480 Hrs. (172-308)*. *Prerequisite: AC 11.*

AC 42
ADVANCED AIRFRAME AND POWERPLANT
Review and advanced practice in structural repairs of all metal aircraft systems; live aircraft experience; service procedures; overhaul, testing, installation, operation of live engines; troubleshooting of fuel, electrical, ignition, instrument systems. 480 Hrs. (228-252)*. *Prerequisites: AC 26, AC 32.*

**Lecture and lab hours are shown per semester, not per week.*

BIOLOGY (BIO)

BIO 03
BOTANY (HORTICULTURE)
Fundamentals of plant science, plant anatomy, physiology, taxonomy, reproduction, and genetics. 3 Cr. (2-3), 80 Hrs.

BIO 25
ANATOMY AND PHYSIOLOGY
Study of human anatomy and physiology; cells, tissues, and tumors; nervous, excretory, reproductive, and endocrine systems; diseases; principles of chemistry, microbiology and physics. 3 Cr. (3-0).

BIO 101
GENERAL BIOLOGY I
Fundamental processes of living organisms. Main concepts of biology beginning with considerations of the chemical basis of life. Structure, function, and evolution of cells. 4 Cr. (3-3).

BIO 102
GENERAL BIOLOGY II
Continuation of BIO 101. Structure, function, interrelationships, and evolution of organisms. 4 Cr. (3-3). *Prerequisite: BIO 101 or permission of the instructor.*

BIO 105
ANATOMY AND PHYSIOLOGY OF MAN I
A medically orientated study of the structure and function of the human body. Intended for students specializing in nursing, medical technology, and biology. Lecture and laboratory. 4 Cr. (3-3).

BIO 106
ANATOMY AND PHYSIOLOGY OF MAN II
Continuation of BIO 105. 4 Cr. (3-3). *Prerequisite: BIO 105.*

BIO 201
MICROBIOLOGY
Biology of microorganisms including bacteria, rickettsiae, viruses, fungi, protozoa, and helminths. Relationships between microorganisms and higher forms of life. 4 Cr. (3-3). *Prerequisite: BIO 102.*

BIO 203
GENERAL BOTANY
Introduction to plant physiology, plant life cycles, and plant taxonomy. 4 Cr. (3-3). *Prerequisite: BIO 102.*

BIO 208
ECOLOGY
Includes the basic principles of the relationships of plants and animals to their environments. Physical factors, energy and chemical cycles in the ecosystem, population and community characteristics, ecological succession, aquatic and terrestrial ecology. Local terrestrial and aquatic environments. 4 Cr. (3-3). *Prerequisite: One semester of college level Biology.*

BIO 290
SPECIAL STUDIES IN BIOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. (1-3, laboratory as required).

BROADCASTING (BR)

BR 10
INTRODUCTION TO ANNOUNCING
Principles of announcing; practice in reading, voice inflecting, pronunciation of foreign names, and similar exercises; use of tape recorder in pre-recording repetitive items; lab instruction. 3 Cr. (3-0).

BR 14
STATION MANAGEMENT AND COMMUNITY RESPONSIBILITY
Study of problems related to serving community needs while making a profit; ratio of advertising to program time; character of station; meeting community responsibility through community interest programs; responsible use of editorial privilege. 3 Cr. (3-0).

BR 16
NEWS WRITING FOR BROADCASTERS
A brief review of English as it is structured for news writing. News writing, as it is peculiarly designed for the ear, for use in radio and television. Typical news stories are written and recorded. 3 Cr. (3-0).

BR 17
BASIC ELECTRONICS AND FCC LICENSING
Fundamental mechanics of operation of tape recorders, turntables, network facilities, and multispeaker systems; mechanics necessary to obtain FCC licensing; field visits to at least five different stations. 3 Cr. (3-0).

BR 18
ADVANCED ANNOUNCING
Special techniques employed in sports announcing, "talk" programs, and interviews; lab practice; practice on College audio-visual equipment. 3 Cr. (3-0).

BR 19
RADIO PROGRAMMING
Determining basic character of a station; setting up a program to meet objectives; use of "public interest" programs and national, state, and local news to meet FCC requirements; maintaining balance between "talk" and "music" programs. 3 Cr. (3-0).

BR 20
BROADCAST ADVERTISING
The impact of advertising and its history in American culture. Examines phases of marketing analysis and media selection. Preparation of radio and TV advertising are a major part of the course. 3 Cr. (3-0).

BR 21
IN-SERVICE TRAINING I
Supervised work with the Office of College Information in the preparation of typed news releases for local radio stations, or assignments to the College's closed-circuit television production teams. 2 Cr. (0-6).

BR 22
IN-SERVICE TRAINING II
Advanced work with the Office of College Information in the preparation of "public service" programs for local radio stations, or more responsible assignments on closed-circuit television. 2 Cr. (0-6).

BR 23
IN-SERVICE TRAINING III
Major assignments with the Office of College Information or the audio-visual closed-circuit television system including the total preparation of at least one program from conception to final production. 2 Cr. (0-6).

BUSINESS ADMINISTRATION (BUS)

BUS 201
PRINCIPLES OF ACCOUNTING I
Develops a basic understanding and appreciation of elementary accounting principles. Includes the procedures, terminology, theories, and practical application of proprietorship accounting. 3 Cr. (3-0).

BUS 202
PRINCIPLES OF ACCOUNTING II
Additional development of accounting principles as they apply to the different forms of business with an emphasis on partnership accounting, corporate accounting and accouting theory. 3 Cr. (3-0). *Prerequisite: BUS 201 or equivalent course.*

BUS 250
BUSINESS LAW I
Traces the evolution of law. Major emphasis on the study of law as it pertains to individual and business contracts. 3 Cr. (3-0).

BUS 251
BUSINESS LAW II
Covers the various requirements and types of commercial paper, personal property, and various type bailments. The law of sales, with product liability and warranties, is covered from the seller's as well as consumer's standpoint. 3 Cr. (3-0). *Prerequisite: BUS 250.*

BUSINESS MANAGEMENT (BM)

BM 13
PRINCIPLES OF BUSINESS
Introduction to the various types of business organizations, from a legal as well as administrative viewpoint. Emphasizes terminology as it is applied in business fields such as economics, finance, marketing, and business law. Includes basic concepts of management from the establishment of objectives through planning, organizing, policy formulation, taking action, measuring and evaluating, and performance improvement. 3 Cr. (3-0).

BM 14
OFFICE MACHINES
Understanding and operation of various types of machines used in the business office: ten-key, full-keyboard-adding-listing, rotary, and key-driven and electronic calculators. 2 Cr. (1-3), 64 Hrs.

BM 21
BUSINESS COMMUNICATIONS
Application of communications skills; listening, reading, writing, and speaking accurately, briefly, and clearly. Students are trained to write all types of business communications. Includes the techniques of personal and interpersonal relationships that will enable the student to perform well and to advance in a career. 3 Cr. (3-0), 48 Hrs.

BM 23
BUSINESS MATHEMATICS
Fundamentals of mathematics as applied to addition, subtraction, multiplication, and division; the use of percent, interest, depreciation and installment buying as used in the modern business world. 3 Cr. (3-0), 48 Hrs.

BM 24
OFFICE PROCEDURES
Filing, telephone, and the physical arrangement and equipment of the office. Instruction and practice in the operation of ten-key, full-keyboard-adding-listing, rotary, electronic, and key-driven calculators, as well as duplicating, dictating and transcribing equipment are included. 2 Cr. (1-3).

BM 31
BUSINESS LAW I
Introduction to the judicial process, the social implications of law, the roles of government and labor unions in the formulation of business laws. In-depth study of rights and obligations as they apply to contract law. 3 Cr. (3-0).

BM 33
BUSINESS ORGANIZATION AND MANAGEMENT
Provides a basic understanding of the concepts of management theory. Analysis of current managerial philosophies. The functions of management from establishment of objectives through planning, organizing, developing structure, policy formulation, taking action, measuring and evaluating, and improving performance are discussed. Includes various approaches, techniques, and devices used in the performance of these functions. 3 Cr. (3-0).

BM 35
BUSINESS PSYCHOLOGY
Psychological principles as applied to modern business. Encourages the proper attitudes toward work, toward people, and toward personal habits that will make the student aware of human relation skills needed to be an efficient employee, an effective leader, both on and off the job. 3 Cr. (3-0).

BM 36
MARKETING
Illustrates various methods of merchandising and the channels of distribution from producer or manufacturer to the consumer. Includes government regulations, pricing, cost and branding, influence of consumers on marketing programs and current marketing trends. 3 Cr. (3-0).

BM 37
BANKING AND INVESTMENTS
Introduction to banking and investments. Explains how institutions can best meet the needs of society. Provides a foundation for understanding how banks operate today, and why and how they have evolved to their present state. 3 Cr. (3-0).

BM 38
INSURANCE
Structure and practices of the insurance field. Various types of insurance policies and their uses and importance for personal and business success are stressed. 3 Cr. (3-0).

BM 39
REAL ESTATE
Introduction to the field of real estate. Emphasizes the legal aspects of real property ownership and lease arrangements and the instruments commonly used in property transactions. Includes the functions and procedures of the real estate broker. 3 Cr. (3-0).

BM 41
BUSINESS LAW II
Incorporates the objectives of Business Law I and provides an in-depth study of the laws of agency and employment relation, commercial paper, personal property, bailments, and sales. 3 Cr. (3-0). *Prerequisite: BM 31.*

BM 42
RETAILING
Familiarizes the student with the field of retailing. Provides the technical and theoretical knowledge necessary for retail management employment. 3 Cr. (3-0).

BM 43
SALESMANSHIP
Examines the positive role personal selling plays in the U.S. economy and documents the extent to which selling has aided our economic growth. Designed to show the role of salesmanship in helping customers recognize and satisfy wants and needs. 3 Cr. (3-0).

BM 45
FINANCE
Introduction to basic principles of finance. Includes the monetary and credit system, long and short-term business financing, agricultural, consumer, and international financing. Examines the background of early monetary standards and the weaknesses of the various systems. 3 Cr. (3-0).

BM 47
SMALL BUSINESS MANAGEMENT
Introduction to the problems of owning and operating a business of one's own. Necessary personal characteristics, problems involved in buying and initiating a new business, and the activities of management are covered. 3 Cr. (3-0), 48 Hrs.

BM 48
SUPERVISION AND HUMAN RELATIONS
Duties and responsibilities of the first-line supervisor and manager who holds up to a middle-level management position are studied from a behavioral point of view and in relation to how he influences others to accomplish organizational goals. Includes motivation, job enrichment, rules of leadership, and interpersonal relationships. 3 Cr. (3-0). *Prerequisite: BM 13 or Division permission.*

CARPENTRY (CB & CC)

CB 10
WOODWORKING FOR CARPENTERS
Basic principles and skills of hand and machine woodworking operations; special projects. 4 Cr. (2-6).

CB 11
CONSTRUCTION CARPENTRY
Basic principles of frame construction: foundations and concrete formwork, types of building frames, strength of beams and girders, structural sheathing and house details; ideas and trends in construction methods and techniques. 4 Cr. (2-6).

CB 24
ESTIMATING AND BLUEPRINTS
Introduction; types of drawings; lines, marks, symbols, conventions, scales, dimensions; quantities of material and cost estimating. 2 Cr. (2-0).

CB 25
BLOCK CONSTRUCTION
Block laying skills in lab; practical work; classroom instruction covering materials used, types and sizes of blocks, principles of cost estimation. 6 Cr. (2-12).

CB 30
ROOF-FRAMING THEORY
Principles of rafter layout, use of framing square, problems of roof framing and construction, types of roofs and rafters. 3 Cr. (3-0).

CB 34
BRICK CONSTRUCTION
Laying various patterns of brick to meet industrial standards with speed and accuracy, following architect's drawings; chimney, fireplace and wall projects. 5 Cr. (2-9).

CB 40
ADVANCED CARPENTRY
Advanced woodworking techniques and fundamentals of finished carpentry; modern finishing materials; methods of application; exterior and interior trim; millwork, cornice work, roofing, siding, frame for openings, interior wall and ceiling material; trim and moldings; built-in cabinet work; stairbuilding; school-sponsored construction work. 4 Cr. (2-6).

CB 42
BUILDING CONSTRUCTION TECHNOLOGY
Advanced technical aspects of building construction, solution of practical problems; special advanced projects, campus construction work including house construction projects. 6 Cr. (3-9).

CB 44
CONCRETE CONSTRUCTION
Principles of concrete design, water-cement ratio, proportion of ingredients, reinforced concrete, study of concrete footers and walls, finishing with hand and power trowel equipment, proper methods of curing and testing. 3 Cr. (2-3).

CC 51
CONCRETE AND BLOCK (8 weeks)
Study and application of methods and materials used in laying out and building block and concrete walls; principles used in forming, pouring and finishing concrete footings, reinforced concrete and concrete slabs. Appropriate tools are introduced and instruction in their proper use and care is offered. 200 Hrs. (5-20).

CC 52
FRAMING AND SHEATHING (8 weeks)
Principles and applications of framing and sheathing through shop and outside projects. Emphasizes new and traditional materials used in this phase of construction. 200 Hrs. (5-20).

CC 53
INTERIOR FINISH (8 weeks)
Instruction in the selection and application of materials used for interior walls, ceilings and floors. Opportunity for the student to use these materials, and the tools associated with them, through shop and permanent installations. 176 Hrs. (5-17).

CC 54
SPECIALTY AND RELATED TRADES (8 weeks)
Surveys specialty and related trade areas, from wall and floor coverings through fundamental electrical wiring and plumbing and heating. Instruction and practical experience. 152 Hrs. (3-16).

CC 61
BRICK AND STONE (8 weeks)
Study of brick and stone products currently used in construction, with emphasis on common methods within the shop, and, when possible, through permanent projects outside the shop. 200 Hrs. (5-20).

CC 62
EXTERIOR FINISH (8 weeks)
Develops skills in the selection and use of siding and roofing materials. Offers experience in door and window framing, exterior trim, cornice work, insulation materials and methods. 200 Hrs. (5-20).

CC 63
INTERIOR TRIM (8 weeks)
Presents a broad area of building construction, including door hanging, moldings and trim, built-in features, stair building and kitchen cabinets. Offers the student a wide range of information and, when possible, provides experience in the use of the methods and materials studied. 176 Hrs. (5-17).

CC 64
PRACTICAL CONSTRUCTION EXPERIENCE (8 weeks)
Utilization of the knowledge and skills acquired in the construction curriculum. Supervised permanent projects on and around campus are used as an instructional vehicle. When practical, the student participates in all stages of the project from planning through construction. 152 Hrs. (0-19).

CC 73
BLUEPRINTS AND SPECIFICATIONS
Develops techniques in reading and interpreting of blueprints and specifications. Instruction in reading plan views, elevations, and details as typical of working drawings. Reviews the math principles involved in understanding and using these drawings. Stresses specifications and their relationship to the working drawings. 48 Hrs. (3-0). *Prerequisites: CC 51, CC 52, CC 61, CC 62.*

CC 74
BUILDING TRADES ESTIMATING
Study of processes and procedures gives working knowledge of various trades and shows how realistic construction costs are obtained for completed projects. Includes both residential and commercial estimating with the emphasis on types of estimates and quantity take-offs. 48 Hrs. (3-0). *Prerequisite: CC 73*

CC 84
PERSONAL AND JOB ORIENTATION
Introduction to practical techniques in self-evaluation stressing the importance of values, interests, personality, and attitude in determining work success. Emphasis on establishing realistic work goals and expectations based on the student's knowledge of himself. Surveys problems the beginning worker faces preparing to take his place in the world of work. Methods and techniques of gaining and maintaining employment are discussed in detail. 48 Hrs. (3-0).

CHEMISTRY (CHE)

CHE 11
FUNDAMENTALS OF CHEMISTRY
Introductory treatment of basic concepts of inorganic and organic chemistry. Essentially non-mathematical. Intended for the student who has never had chemistry or whose background is very weak. Prepares the student for CHE 105 or CHE 111. 4 Cr. (3-3).

CHE 105
GENERAL ORGANIC CHEMISTRY
Basic introduction to the major classes of organic compounds, including brief review of some inorganic concepts as related to organic reactions. Intended for non-science students desiring to fulfill a lab science requirement and for science students as a preliminary introduction to CHE 203. 4 Cr. (3-3). *Prerequisites: High school chemistry or permission of the instructor.*

CHE 111
GENERAL CHEMISTRY I
Principles of modern chemistry with emphasis on inorganic aspects. Intended for science majors and non-science students desiring to fulfill lab science requirement. Prepares the student to continue into CHE 112 or CHE 203. 4 Cr. (3-3). *Prerequisites: High school algebra or equivalent; high school chemistry desirable but not required.*

CHE 112
GENERAL CHEMISTRY II
Continuation of CHE 111. Intended for science majors and non-science students desiring to fulfill a lab science requirement, but the latter may desire to elect CHE 105 instead. 4 Cr. (3-3). *Prerequisites: CHE 111, or high school chemistry with permission of the instructor.*

CHE 203
ORGANIC CHEMISTRY I
Study of the major classes of organic compounds with emphasis on molecular structure and reaction mechanisms. Intended for science majors. 4 Cr. (3-3). *Prerequisites: CHE 111, or CHE 105, or high school chemistry with permission of the instructor.*

CHE 204
ORGANIC CHEMISTRY II
Continuation of CHE 203. 4 Cr. (3-3). *Prerequisites: CHE 203 or equivalent.*

CHE 290
SPECIAL TOPICS IN CHEMISTRY
A flexible course intended to meet special needs or interests of science or non-science students. Lectures may be supplemented with lab work as needed. 1 to 4 Cr. *Prerequisite: Permission of the instructor.*

CIVIL ENGINEERING TECHNOLOGY (CT)

CT 05
MATERIALS OF CONSTRUCTION
Properties of concrete, aggregates, asphalt, steel, wood, plastics, clay products and miscellaneous construction materials; methods of testing and sampling construction materials; application of data on materials to design of structure. 2 Cr. (2-0).

CT 06
ENGINEERING DRAWING
Use of instruments: lettering, geometric constructions; orthographic projection; dimensioning; sketching. Architectural drawing including, plans, elevations, details, and site plans. Structural drawing including: uses and detailing for wood, concrete, and steel structures. 3 Cr. (1-6).

CT 10
INTRODUCTORY SURVEYING
Introduction to surveying; use and care of instruments; simple surveys with compass, transit, level, and tape. 2 Cr. (1-3).

CT 20
PLANE SURVEYING
Theory and practice of plane surveying; traverses and elementary triangulation, differential and reciprocal leveling; stadia and construction surveys; plane table surveys. 4 Cr. (1-9). *Prerequisites: CT 10; MAT 103. Corequisite: MAT 104.*

CT 23
TOPOGRAPHIC DRAWING & CARTOGRAPHY
Use of conventional signs in mapping, the construction of large-scale topographic maps, logical contouring, photographic interpretation. Methods of plotting, use and construction of small scale maps, earth's coordinate system, map projections, enlargement and reduction of maps, scribing techniques, photographic color separation, typography, reproduction, and processing. 3 Cr. (1-6). *Prerequisite: CT 06.*

CT 30
ROUTE SURVEYING
Highway curves (horizontal and vertical); plus and offset; X-sections; field astronomy; route location. 4 Cr. (1-9). *Prerequisites: CT 20; MAT 104.*

CT 34
STATICS
Basic principles of statics; coplanar and non-coplanar force systems; friction; centroids and moments of inertia; hydrostatic pressures and loads. 3 Cr. (3-1). *Prerequisite: MAT 104.*

CT 35
HIGHWAY ENGINEERING TECHNOLOGY
Highway economy, highway characteristics, drainage and structures, super-elevation, roadway construction, concrete-mix design, hydrology (precipitation and runoff), mass diagram, contracts and specifications. 3 Cr. (3-0). *Corequisite: CT 30.*

CT 40
ADVANCED SURVEYING
Theory and practice of boundary surveys; city surveys; mine surveys; hydrographic surveys and steam gaging; bridge surveys; survey control, and state coordinate systems; public land surveys; precise leveling and triangulation. 3 Cr. (2-3). *Prerequisite: CT 30.*

CT 44
STRENGTH OF MATERIALS
Engineering materials and properties; shear and moments in beams; stresses in beams; design of beams; deflection of beams; columns. 3 Cr. (3-0). *Prerequisite: CT 34.*

CT 46
PHOTOGRAMMETRY
Use and application of aerial photographs; mapping by photogrammetric methods; geometry of aerial photographs; aerial triangulation; flight planning; mosaics; contracts and specifications. 3 Cr. (2-3). *Prerequisites: CT 23; MAT 104.*

COMPUTER OPERATOR (CO)

CO 10
BASIC COMPUTER OPERATIONS
Introduction to the operation of all types of equipment found in computer installations. Includes mounting tapes and disk packs and operating line printers and card reader-punches. Students will operate the key-punch, sorter, and other unit record equipment. 4 Cr. (3-3), 96 Hrs.

CO 11
COMPUTER OPERATIONS INTERNSHIP I
Provides practical experience in computer operations by assignment to the college's computer center and the data communications laboratory. 2 Cr. (0-6), 96 Hrs.

CO 20
ADVANCED COMPUTER OPERATIONS
Introduction and training in the non-physical aspects of data processing operations. Emphasizes "software" operations. Concentrates on the use of EDP manuals, programs which allow the computer to operate efficiently, and the actual operation of a computer center. 4 Cr. (4-0), 64 Hrs. *Prerequisite: CO 10.*

CO 21
COMPUTER OPERATIONS INTERNSHIP II
Continuation of CO 11. 2 Cr. (0-6), 96 Hrs. *Prerequisite: CO 11.*

CO 22
COMPUTER TECHNOLOGY
Introduces additional features of computer hardware and processing concepts. Includes a survey of computer hardware and comparison of various types of computers, purpose and operation of computer terminals, time-sharing, telecommunications, and mini-computers. Fundamental understanding of electronics. On-the-job training in the WACC computer center and various industrial locations. 3 Cr. (3-0), 48 Hrs. *Prerequisites: CO 11 and CS 18.*

COMPUTER SCIENCE (CS & CSC)

CS 17
RPG PROGRAMMING
Beginning course in Report Program Generator (RPG) Programming. The student will learn to write, compile and execute RPG programs. The programs written for this course will be business applications and business-oriented problems. 3 Cr. (3-0).

CS 18
FUNDAMENTALS OF COMPUTER SCIENCE
Introduction to the field of computer science. Specific topics covered include punch card equipment, records and files, concepts of computer systems, logic and problem solving techniques, flowcharts, algorithms, data representation, file organization, and operating procedures. 3 Cr. (3-0).

CS 27
ASSEMBLER LANGUAGE PROGRAMMING
Beginning course in Basic Assembler language. Includes data representation, instruction, coding; problem analysis, flowcharting; program writing, execution, debugging, and documentation; job control and operating systems. 4 Cr. (4-0). *Prerequisite: CS 18 or Division permission.*

CS 28
COBOL PROGRAMMING I
Study and programming in the COBOL computer language; language elements and divisions; program writing, execution, and diagnostics; advanced programming concepts and techniques. 3 Cr. (3-0). *Prerequisite: CS 18.*

CS 30
INTERNSHIP IN COMPUTER SYSTEMS
Supervised individual research projects or assignment to an industrial data processing site for on-the-job training. 3 Cr. (0-9). *Prerequisite: Two semesters of Computer Science.*

CS 33
SYSTEMS DEVELOPMENT AND APPLICATIONS I
Analysis and design of data processing systems; system investigation; input, output designs; record and file designs; information structures; problem definition, documentation, coding approaches; independent development of an assigned system problem by the student. 3 Cr. (3-0). *Prerequisites: CS 18 and a programming language.*

CS 36
FORTRAN IV AND LINEAR PROGRAMMING
Introduction to FORTRAN IV language programming as applied to business and mathematics problems. Includes subprograms, table handling, linear programming, use of the plotter to draw graphs, and utilization of magnetic tape and disc. 4 Cr. (4-0). *Prerequisites: CS 18, MAT 201 or MAT 203, programming language.*

CS 38
COBOL PROGRAMMING II
Introduction to structures for representing the logical relationship between elements of information and the techniques for operating upon information structure using tape and disc storage. Examines how a complex computer programming task can be subdivided for maximum clarity, efficiency, and ease of maintenance and modification. Concept of programming style will permeate most of the material presented. Careful verification of program operation and documentation of programs will be emphasized. 3 Cr. (3-0). *Prerequisite: CS 28.*

CS 43
SYSTEMS DEVELOPMENT AND APPLICATIONS II
Independent development of an assigned systems problem and/or continuation of problem assigned in CS 33; design criteria, logic diagrams and coding; manual and operating procedures and manuals; proving the system; feedback and evaluation. 3 Cr. (3-0). *Prerequisites: CS 33 and CS 28.*

CS 45
COMPUTER SOFTWARE SYSTEMS
Provides a working view of hardware/software configurations as integrated systems. Introduction to execution software, multiprogramming and operation software. Utility routines and file systems will be investigated. Basic components of file and communication systems will be presented and analyzed. The functioning of these systems as integral components of an information system will be stressed. 3 Cr. (3-0). *Prerequisite: Programming language.*

CS 46
PL/1 PROGRAMMING
Study and programming in the PL/1 computer language. Programming concepts and techniques applied to business and mathematical problems. 3 Cr. (3-0). *Prerequisites: CS 28, CS 36, or Division permission.*

CSC 100
FORTRAN IV PROGRAMMING
Concepts of data processing systems, methods and applications; programming languages and program structures; FORTRAN IV programming language problem analysis, flow-charting and computer solution of numerical and non-numerical problems. 3 Cr. (3-0).

DENTAL LABORATORY TECHNICIAN (DL)

DL 12
INTRODUCTION TO DENTAL TECHNOLOGY (BASIC FUNDAMENTALS)
Introduction to the terminology, materials, tools, equipment, and general area. Use of the above and the necessary safety precautions. Various basic techniques also presented. 5 Cr. (3-6).

DL 13
DENTAL MATERIALS
Familiarizes trainees with the history, names, types, physical and mechanical properties, uses, proper handling and limitations of dental materials, including impression materials, waxes, metals, gypsum, compounds, resins, and porcelains. 3 Cr. (3-0).

DL 22
DENTURE TECHNIQUES I
Explains the necessary qualities needed for satisfactory dentures. Includes specialized techniques in tooth selection, arrangement, waxing and processing, immediate denture technique and various repair, reline and rebasing procedures. 6 Cr. (3-9).

DL 23
ORAL ANATOMY
A study of the skull, including its blood and nerve supply, muscles, joints, surfaces, glands and teeth. 3 Cr. (3-0).

DL 32
DENTURE TECHNIQUES II
Utilizing training from DL 22 through practical application on actual cases. Improves skills, quality, accuracy and speed, in a productive setting. 6 Cr. (1-15). *Prerequisite: DL 22.*

DL 33
ODONTOGRAPHY
A study of tooth anatomy, including lectures and bench procedures. Drawing of teeth to scale and carving to scale in plaster and wax. 4 Cr. (2-6).

DL 42
CAST PARTIAL TECHNIQUES I
Includes an introduction to removable partial appliances, terminology, phases of construction, use of surveyor, design, connectors, rests and retainers. Also waxing, spruing, investing, casting, finishing, and polishing. 6 Cr. (3-9).

DL 44
CROWN AND BRIDGE I
Begins with the historical background of Crown and Bridge procedures and techniques, continues on to include the latest in the construction of Inlays, Crowns, and Bridges from impression to completion, including soldering and veneering. 5 Cr. (3-6).

DL 50
CAST PARTIAL TECHNIQUES II
Utilizes training from DL 42 through practical application on actual cases. The improving of skills, quality, accuracy and speed, in a productive setting. 6 Cr. (1-15). *Prerequisite: DL 42.*

DL 51
CROWN AND BRIDGE II (DENTAL CERAMICS)
Begins with a discussion of the history of the art of ceramics. Covers the various compositions of dental porcelains. Manipulation, carving, firing, and glazing of porcelain, with characterization and shading of porcelain stressed, using stains and modifiers. Techniques of fusing and soldering porcelain to gold. 5 Cr. (3-6). *Prerequisite: DL 44.*

DEVELOPMENTAL STUDIES (LC)

COL 01
READING AND STUDY SKILLS
Designed to help student develop his/her potential to function in the reading areas in an effective, efficient manner, and to learn and apply study, note-taking skills that will enable him to perform effectively in other college courses. 2 Cr. (1-3).

DS 01
READING IMPROVEMENT
Basic reading improvement for students with limited success in previous reading performance. Differences in ability and background will determine areas each student will pursue. Emphasis on comprehension, vocabulary, speed, spelling and taking notes from textbook assignments. Audio tapes, reading machines, individualized materials and handout sheets available to encourage independent learning. No Credit (4-0).

ENG 10
BASIC ENGLISH
Intensive review of English grammar and the basic principles of composition. No Credit. (3-0).

MAT 07
DEVELOPMENTAL ARITHMETIC
Comprehension of the basic concepts and skills of arithmetic to prepare students for required mathematics courses. Pre and post tests are used to prescribe and insure mastery of units covered. No Credit. (1-3).

MAT 09
DEVELOPMENTAL ALGEBRA
Basic skills and concepts of arithmetic and algebra are presented according to the learner's aptitude and needs. Pre and post tests are used to prescribe and insure mastery of units covered. No Credit. (3-open).

DIESEL MECHANICS (DM)

DM 11
BASIC DIESEL MECHANICS I (8 weeks)
Fasteners, mechanical measurements. Basic principles of electricity. Gasoline engine principles and service procedures. 192 Hrs. (5-19).

DM 12
BASIC DIESEL MECHANICS II (8 weeks)
Introduction to diesel engines. Automotive electrical systems, with emphasis on cranking and charging circuits. 192 Hrs. (5-19).

DM 21
DIESEL MECHANICS I (8 weeks)
Gasoline engine repair and overhaul. Emphasis on gas truck engines. Basic principles of truck air conditioning systems. 192 Hrs. (5-19). *Prerequisites: DM 11 and DM 12.*

DM 22
DIESEL MECHANICS II (8 weeks)
Diesel engine repair and overhaul. Applications of diesel power including trucks, stationary, and marine. 192 Hrs. (5-19). *Prerequisite: DM 21.*

DM 51
DIESEL MECHANICS III (8 weeks)
Basic hydraulics. Introduction to diesel fuel injection systems. Principles of governing. Mechanical governing. 192 Hrs. (5-19). *Prerequisites: DM 22 or SO 23, or AM 22, or AU 53.*

DM 52
DIESEL MECHANICS IV (8 weeks)
Fuel injection systems. Hydraulic governors. 192 Hrs. (5-19). *Prerequisite: DM 51.*

DM 61
DIESEL MECHANICS V (8 weeks)
Truck power train. Clutch, transmission, driveline and differential. 192 Hrs. (5-19).

DM 62
DIESEL MECHANICS VI (8 weeks)
Truck chassis, brakes and suspension. State inspection procedures. 192 Hrs. (5-19).

DRAFTING—ENGINEERING (ED)

ED 01
MECHANICAL DRAWING
Offered to students who are enrolled in curricula other than drafting. Use of drawing instruments, lettering, geometric construction, orthographic projection, technical sketching, isometric and oblique sketches, dimensioning, sections, auxiliary views, threads and fasteners, working drawings, and blueprint reading. 2 Cr. (1-3).

ED 02
ENGINEERING DRAFTING
Practical application of drafting to the electrical construction field for both domestic and commercial use; house diagrams with circuit schematics, wiring diagrams and complete bill of material and layout diagrams for public facilities such as the lighting system for a small community. 2 Cr. (1-3).

ED 03
GEARS AND CAMS
A study of motion transfer through the use of gears and cams. 2 Cr. (1-3).

ED 04
AIRCRAFT DRAWINGS
Aircraft blueprint reading for aviation maintenance technicians with emphasis on the reading and interpretation of multiview drawings, including installation diagrams, schematics, the use of charts and graphs. Making three dimensional sketches for repair and alterations to aircraft. 64 Hrs. (1-3).

ED 05
BLUEPRINT READING
A study of blueprint reading for welders with emphasis on the reading and interpretation of multiview drawings involving dimensions, notes specifications and welding symbols. 48 Hrs. (1-2).

ED 10
BASIC DRAFTING I (8 weeks)
Use of drawing instruments, lettering, geometric construction, orthographic projection, isometric drawings, sectioning, dimensioning, auxiliary views, revolutions and freehand sketching. 4 Cr. (4-12).

ED 11
BASIC DRAFTING II (8 weeks)
Inclusion of screwthreads and fastening devices, working, assembly and installation drawings; axonometric projection; study of sheet metal intersections and developments. 4 Cr. (4-12). *Prerequisite: ED 10.*

ED 12
INDUSTRIAL PROCESSES
Theories and applications in the principal metal removal, forming, joining, and casting processes. 2 Cr. (2-0). 32 Hrs.

ED 20
POWER TRANSMISSION (8 weeks)
A study of power and motion transfer through the use of gears and cams and other devices. 4 Cr. (4-12).

ED 21
MECHANISMS (8 weeks)
A study of power and motion transfer through the use of various linkages and mechanisms. 4 Cr. (4-12).

ED 30
DETAIL AND ASSEMBLY DRAWINGS (8 weeks)
Accurate working drawings, sub-assemblies and assemblies; drawing details from sketches and other engineering specifications; applied strength of materials; bearings; lubrications; elementary design and simplified drafting. 4 Cr. (4-12).
Prerequisite: ED 11.

ED 31
APPLIED DRAFTING TECHNIQUES (8 weeks)
Complicated detail drawings from industrial castings; comprehensive study of close tolerance dimensioning; introduction to fluid mechanics; metric conversion. 4 Cr. (4-12).
Prerequisite: ED 30.

ED 40
ADVANCED DETAIL I (8 weeks)
Redesign of industrial castings into weldments; detail drawings from engineering layouts; comprehensive study of welding, piping and layouts; strength of material as applied to weldments and piping design. 4 Cr. (4-12).

ED 41
ADVANCED DETAIL II (8 weeks)
Advanced study and application of drafting using layouts from industry to make detail, assembly and sub-assembly drawings; included are geometric tolerancing, true position dimensioning and surface finish specifications in accordance with industrial standards; structural drafting and reprodrafting. 4 Cr. (4-12). *Prerequisite: ED 31.*

ED 51
DESCRIPTIVE GEOMETRY
Principles of orthographic projection; fundamental problems involving the relationship of points, lines and planes in space; intersecting lines and planes; graphical computations for bearings and slopes of lines, strike and dip of planes; solution of problems of intersection of planes and solids. 3 Cr. (1-6).
Prerequisite: High school background in drafting.

DRAFTING—MECHANICAL (MD)

MD 10
DRAFTING TECHNIQUES I (8 weeks)
Mechanical drawing; lettering; geometric drawing; orthographic projection; pictorial projections; sectioning; dimensioning; auxiliary views; revolutions; free-hand sketching; reproduction processes. 192 Hrs. (1-23).

MD 11
DRAFTING TECHNIQUES II (8 weeks)
Threads, fasteners, springs; working drawings; assembly, detail and installation drawings. 192 Hrs. (1-23).

MD 20
APPLIED DRAFTING I (8 weeks)
Study of sheet metal intersections and developments, cones, transition pieces, irregular shapes; introduction to making accurate detail drawings from industrial machines parts. 192 Hrs. (1-23).

MD 21
APPLIED DRAFTING II (8 weeks)
Accurate detail drawings from complicated industrial machine parts, conforming to industrial and military standards; comprehensive study of close tolerance dimensioning. 192 Hrs. (1-23).

MD 30
APPLIED DRAFTING III (8 weeks)
Study of power transmissions, pulleys, sheaves, gears, sprockets. 192 Hrs. (1-23).

MD 31
APPLIED DRAFTING IV (8 weeks)
Study of the mechanisms used to create motion in machine cams, linkages. 192 Hrs. (1-23).

MD 40
APPLIED DRAFTING V (8 weeks)
Redesigning of industrial castings into weldments; detail drawings, from engineering layouts; comprehensive study of welding, piping and layout drawings. 192 Hrs. (1-23).

MD 41
APPLIED DRAFTING VI (8 weeks)
Advanced study of drafting applications using industrial layouts to make detail, assembly, sub-assembly drawings; geometric tolerancing; true position dimensioning; surface finish specifications in accordance with industrial and military standards. 192 Hrs. (1-23).

MD 55
DRAFTING
Simple machine layout; completion of the necessary drawings according to industrial practices. 208 Hrs. (1-12).
Prerequisite: Division Director approval.

NOTE: Courses to be taken in sequence as listed unless approval is granted by the Division Director.

ECONOMICS (ECO)

ECO 11
BASIC ECONOMICS
Basic principles of our economy; U.S. capitalistic system; business cycles; investments; stock market operation; personnel policies and procedures. 3 Cr. (3-0), 48 Hrs.

ECO 201
PRINCIPLES OF ECONOMICS
An introductory course dealing primarily with the United States economy, its make-up and problems. 3 Cr. (3-0).

ECO 202
ECONOMIC ANALYSIS
A study of the theory of the firm, and analysis of economic problems involved in public policy decisions. Required of students following the business administration curriculum, or intending to major in economics. 3 Cr. (3-0). *Prerequisite: ECO 201.*

ECO 204
COMPARATIVE ECONOMIC SYSTEMS
Analysis of current economic systems, their theory and practice. 3 Cr. (3-0). *Prerequisite: ECO 201, or permission of the instructor.*

ECO 290
SPECIAL STUDIES IN ECONOMICS
A flexible course designed to meet special needs of economic students. 1-3 Cr. (1 to 3-0). *Prerequisite: Permission of the instructor.*

EDUCATION (EDU)

EDU 102
CHILDREN'S AND YOUNG ADULT LITERATURE
Comprehensive survey of children's and young adult's literature. Provides a basic knowledge and understanding of authors, illustrators, and literary forms as background for work in a public area. 3 Cr. (3-0).

EDU 201
INTRODUCTION TO EDUCATION
Foundations of education; historical, economic, philosophical, and social. Their implications for present-day education. 3 Cr. (3-0).

ELECTRICAL (EL & EW)

EL 12
BASIC WIRING LAB
Lab course in tools and materials of trade; proper use and care of hand tools; instruction in wiring of these basic circuits; residential lighting and receptacle circuits, low voltage switching and control circuits; use of electrical underwriters rules in color coding. 2 Cr. (1-5), 96 Hrs.

EL 14
ELECTRICITY FOR THE TRADES
Theory and laboratory assignments involving electrical design and symbols as noted on building construction blueprints. Explanation of electrical diagrams, and National Electrical Code as governing agent setting rules for wiring requirements. Residential wiring, switching, lighting, receptacles, and service entrances in the laboratory. 3 Cr. (2-3), 80 Hrs.

EL 15
DIRECT CURRENT FUNDAMENTALS
A study of the basic principles of electricity and the laws and formulas which are used to solve electrical problems. Principles of magnetism and their relationship to direct current generators and motors and other electrical machinery. Laboratory work to enable the student to hook up equipment and instruments. 5 Cr. (4-3).

EL 16
BASIC WIRING LAB
Instruction in wiring basic electrical circuits, residential lighting and receptacle circuits. Low voltage switching and control circuits. Electrical underwriters rules. Proper use and care of hand tools. 3 Cr. (1-6).

EL 18
ACCIDENT PREVENTION
Principles of accident prevention in industry and electrical safety procedures in all human activities; lifesaving techniques. 2 Cr. (2-0), 32 Hrs.

EL 25
ALTERNATING CURRENT FUNDAMENTALS
The fundamental principles of the behavior and flow of alternating current electricity. Includes problem solving current, voltage, impedance, reactance and power factor in series and parallel circuits. Operating principles of AC motors, generators and control equipment. 5 Cr. (4-3). *Prerequisite: EL 15.*

EL 26
BASIC ELECTRICAL CONSTRUCTION LAB
Further study of the use of electrical equipment and materials, including all types of wiring devices and wiring systems. Planning and installing electrical systems, bending conduit, pulling in wires, connecting devices, lighting systems and distribution systems. 2 Cr. (1-3). *Prerequisite: EL 16, or EL 12.*

EL 27
RESIDENTIAL BLUEPRINT READING/NATIONAL ELECTRICAL CODE
Planning and drawing of residential wiring systems; calculating number and size of circuits needed for lighting, appliance, and heating; remote control systems; study of National Electrical Code requirements for residential, industrial, and commercial wiring. 4 Cr. (4-0).

EL 38
ELECTRICAL MOTOR CONTROL
Motor control systems in industry, simple and complex, tracing circuits and trouble shooting a system from a schematic drawing. The principles of rotating and magnetic amplifiers, and static switching. 4 Cr. (3-3).

EL 39
BASIC ELECTRONICS
Fundamentals of electronics including basic symbols, circuit configurations, electron tubes, solid state devices; rectifier, amplifier, and oscillator circuits as used in industrial work. Laboratory skills demonstrate practical application of industrial electronics through layout and assembling various circuits, along with solid state devices. 6 Cr. (4-6).
Prerequisite: EL 25.

EL 42
ADVANCED ELECTRICAL THEORY
Solution of network problems and problems involving charge and discharge of capacitors, rotating vectors and other problems involving alternating electricity. 3 Cr. (3-0).
Prerequisite: EL 25.

EL 47
ELECTRICAL SYSTEMS ANALYSIS
Understanding of electrical equipment and electrical testing apparatus to aid in locating and repairing malfunctions in equipment. Preventive maintenance and maintenance records. Use of voltmeters, ammeters, wattmeters, ohmmeters, megohmmeters, wheatstone bridge, tachometer, and all hand tools associated with the electrical trade. 2 Cr. (1-3).
Prerequisite: EL 39.

EL 48
ELECTRICAL CONSTRUCTION BLUEPRINT READING
Blueprint reading and circuit planning construction in factories and commercial buildings. Reference to the rules of the National Electric Code and the Department of Labor and Industry. 4 Cr. (4-0).

EW 11
DIRECT CURRENT FUNDAMENTALS
Study of basic electrical laws, electrical terms, batteries, electro-statics, electrical meters and instruments, direct-current machinery. 160 Hrs. (5-5).

EW 18
MOTOR REWINDING I
Electrical and mechanical features of various single phase motors; lab work and developing knowledge and skill in rewinding and repairing single phase motors. 96 Hrs. (1-5).

EW 21
ALTERNATING CURRENT FUNDAMENTALS
Study of nature of alternating current electricity as related to residential, commercial and industrial power use; laws and formulas needed for the solution of problems in the use of AC power, study of AC machinery; lab work for demonstrating AC electrical principles; practical experience in hook-up of equipment and instruments. 160 Hrs. (5-5). *Prerequisite: EW 11.*

EW 24
BASIC MOTOR CONTROL
Theory and lab assignment involving wiring of starting and control equipment for DC and AC motors; including circuitry for start-stop stations, forward-reverse and jogging push button stations, and some speed control. 96 Hrs. (3-3).

EW 31
BASIC ELECTRICAL CONSTRUCTION LAB
Experience in the use and installation of electrical materials; house wiring circuits, wiring boxes of many kinds, armored cable, wire mold and romex, fluorescent and incandescent light switches and receptacle circuits. 112 Hrs. (1-6).
Prerequisite: EL 12.

EW 35
RESIDENTIAL BLUEPRINT AND CODE
Study of residential wiring circuits, low voltage remote control switching and electric heating, studyof the National Electrical Code book and its provisions dealing with residential and other types of wiring. 64 Hrs. (4-0).

EW 37
ADVANCED MOTOR CONTROL
Theory and laboratory assignments further jobs learned in EW 24, with the study and use of speed controls, plugging equipment for braking and dynamic braking, timing relays involving pneumatic and dash pot types. 96 Hrs. (1-5).
Prerequisite: EW 24.

EW 39
BASIC ELECTRONICS FOR INDUSTRY
Basic electronics concepts used in industrial control. Study of vacuum tubes, electronic circuits, solid state devices, symbols, and motor circuits. Application of these devices in laboratory practices demonstrates use in industry. 160 Hrs. (4-6). *Prerequisite: EW 21.*

EW 41
COMMERCIAL AND INDUSTRIAL BLUEPRINT READING
Study of electrical construction planning for industry and commerce and relevant electrical code. 64 Hrs. (4-0).

EW 42
INDUSTRIAL MOTOR CONTROL
Study of industrial control circuitry involving theory of SCR equipment, static control and circuitry, logic: laboratory experience in designing and constructing control panels used in industry. 96 Hrs. (3-3). *Prerequisite: EW 37.*

EW 44
ADVANCED ELECTRICAL CONSTRUCTION
Practice in installation of rigid conduit and other electrical wireways; pulling in and wiring of motor controllers and other electrical equipment; study of blueprints of large electrical construction jobs. 144 Hrs. (1-8). *Prerequisite: EW 31.*

EW 49
ELECTRICAL MACHINERY, ANALYSIS AND REPAIR
Theory and laboratory instruction in use of complex metering methods used with industrial equipment, static and logic circuitry, equipment troubleshooting and repair using schematic diagrams, power transmission and distribution. 128 Hrs. (4-4). *Prerequisite: EW 39.*

ELECTRONICS (ET)

ET 11
ELECTRONICS—THEORY I
Electricity and electronics theory including structure of matter, basic atomic theory, DC and AC, Ohm's Law, Kirchoff's Law; electrical calculations and formulas; magnetism and electromagnetism, vector analysis; resonance; electrical filters; measuring instruments. 5 Cr. (5-0).

ET 12
ELECTRONICS-APPLICATIONS I
Application of electronic concepts of component testing and identification, wiring electrical and electronic circuits; demonstration and laboratory work coupled with extensive use of electronic tools and equipment. 3 Cr. (0-9). *Prerequisite or Corequisite: ET 11.*

ET 14
ELECTRICAL CIRCUIT ANALYSIS
First of three or four semester sequential courses in analysis, tracing, and problem solving including close analysis of AC and DC circuits. Special emphasis on circuit tracing and solution of electrical problems using mathematical approaches. 3 Cr. (3-0). *Prerequisite or Corequisite: ET 11.*

ET 21
ELECTRONICS—THEORY II
Continuation of ET 11; basic theory covering vacuum tubes and solid state devices as well as circuits using these devices; advanced electrical and electronic measuring instruments. 5 Cr. (5-0). *Prerequisites: ET 11, MAT 103.*

ET 22
ELECTRONICS—APPLICATIONS II
Continuation of ET 12: construction and testing of vacuum tube and solid state systems such as amplifiers, detectors; theory and operation of laboratory testing equipment including gain, distortion, frequency response and power output measurements. 3 Cr. (0-9). *Prerequisites or Corequisites: ET 12, ET 21.*

ET 23
BASIC ELECTRONICS CIRCUIT ANALYSIS
Continuation of ET 14: complete analysis of electronic circuits featuring design and component selections as well as more advanced circuit checking and testing. 3 Cr. (3-0). *Prerequisites or Corequisites: ET 14, ET 21.*

ET 33
INTERMEDIATE ELECTRONICS CIRCUIT ANALYSIS
Continuation of ET 23: closer analysis of more complicated circuitry including pulse techniques and pulse generators; blocking oscillators; multivibrators and shaping networks; integrating and differentiating networks. 3 Cr. (3-0). *Prerequisites or Corequisites: ET 23, ET 34.*

ET 34
ELECTRONICS—THEORY III
Continuation of ET 21; detailed study of solid state and vacuum tube circuits and devices, and includes microwaves, wave propagation, transmission lines, gating and logic circuits. 5 Cr. (5-0). *Prerequisites: ET 21, MAT 104.*

ET 37
ELECTRONICS—APPLICATIONS III
Continuation of ET 22; construction and analysis of more sophisticated solid state and vacuum tube equipment; use of more advanced types of lab instruments; laboratory report writing. 3 Cr. (0-9). *Prerequisites or Corequisites: ET 22, ET 34.*

ET 41
CALIBRATION AND STANDARDIZATION
Principles of Electronic instrument calibration and standardizing techniques. The position and purpose of the National Bureau of Standards. Instruments used in the school Standards Laboratory. 3 Cr. (3-0). *Prerequisite: ET 34.*

ET 44
ADVANCED CIRCUIT ANALYSIS
Close analysis of wave and pulses as found in color television; alignment of electronic circuits, including color television. 3 Cr. (3-0). *Prerequisite or Corequisite: ET 47.*

ET 47
ELECTRONICS—THEORY IV
Systems and waveform analysis; includes cathode-ray display devices, laboratory type instruments; T.V. and servo systems; computer principles. 5 Cr. (5-0). *Prerequisite: ET 34.*

ET 48
ELECTRONICS—APPLICATIONS IV
Practical applications of advanced types of precision electronic instruments, including waveform measurements, signal and circuit tracing, dynamic measurements of systems performance. 3 Cr. (0-9). *Prerequisites or Corequisites: ET 37, ET 47.*

ENGINEER IN TRAINING PROGRAM (EIT)

EIT 10C
STATICS
The course includes the study of basic principles of statics: various force systems, static equilibrium of the force systems, friction and miscellaneous static related problems. The practical applications of these principles—analysis of roof and bridge trusses, beam under various loading conditions; belt friction and rolling resistance, flexible cables, etc. are also covered. 3 Cr. (3-0).

EIT 11C
STRENGTH OF MATERIALS I
The course outlines properties of engineering materials, behavior of materials under loads, stress and deformations, riveted and welded joints, torsion, centroids, moment of inertia, areas of shear and moments in beams, stresses in beams and design of beams. Students will learn to analyze and design simple beams, riveted and welded connections, shafts subjected to torsion, etc. 3 Cr. (3-0).

EIT 12C
DYNAMICS
The course covers basic principles of dynamics, i.e., kinematics of rectilinear motion, curvilinear motion, kinetics of motion, plane motion, and their effects on moving or static bodies. The application of these principles includes use of work, energy and power and impulse, mometum and impact concepts to solve various motion problems. 3 Cr. (3-0).

EIT 14C
FLUID MECHANICS
The course presents the basic principles of fluid mechanics and their applications in practical fluid mechanics problems. It includes study of properties of fluids, fluid pressure at rest, buoyancy effect, steady flow of liquids in closed conduits, as well as in open channels, losses in both cases, flow measuring devices, variable flow, forces produced by fluids in motion and dimensional analysis and similitudes. All equations of the fluid flow are derived from the basic Bernoulli equation. 3 Cr. (3-0).

EIT 16C
STRENGTH OF MATERIALS II
Continuation of Strength of Materials I. Covers complex problems such as deflection of beams by moment-area method, analysis of statically indeterminate beams by three moment equation and moment distribution methods, combined bending and axial stresses, analysis and design of timber, steel and aluminum columns and special topics of strain energy and impact loadings. 3 Cr. (3-0).

EIT 18C
ENGINEERING ECONOMICS
Study of economics as it relates to engineering. 3 Cr. (3-0).

EIT 20C
ENGINEERING CHEMISTRY
An intensive course of chemical calculations based on chemical reactions and physical properties of substances. Includes theoretical topics as needed for a basis of calculations. 3 Cr. (3-0).

EIT 22C
THERMODYNAMICS
The study of energy transfer in relation to the changes in physical properties of substances. 3 Cr. (3-0).

EIT 24C
ENGINEERING PHYSICS
A study of physics as it relates to engineering. 3 Cr. (3-0).

ENGLISH (ENG)

ENG 01
COMMUNICATIONS I
Foundation in oral skills; propaganda, material fallacies, and small group dynamics. Development of writing competencies related to vocational objectives. 48 Hrs. (3-0).

ENG 02
COMMUNICATIONS II
Continuation of ENG 01. Studies in the dynamics of the mass media. 48 Hrs. (3-0). ***Prerequisite: ENG 01.***

ENG 10
BASIC ENGLISH
See DEVELOPMENTAL STUDIES, pg. 64.

ENG 11
LANGUAGE AND COMPOSITION I
Primary emphasis on the principles of expository writing through examination of essays. Studies in the structure and the development of the English language. 3 Cr. (3-0), 48 Hrs.

ENG 12
LANGUAGE AND COMPOSITION II
Continuation of ENG 11 with writing of expository and critical essays. Studies in mass media. Principles of research. 3 Cr. (3-0), 48 Hrs. ***Prerequisite: ENG 11.***

ENG 13
TECHNICAL WRITING
Intensive survey of technical writing with practice in preparing reports for business and industry. 3 Cr. (3-0), 48 Hrs. ***Prerequisites: ENG 12 or equivalent.***

ENG 101
ENGLISH COMPOSITION I
Basic composition involving language structure, rhetorical principles, orderly, clear writing, and readings in expository prose. 3 Cr. (3-0).

ENG 102
ENGLISH COMPOSITION II
Continues the writing principles of ENG 101 and includes the study of other modes of expression. 3 Cr. (3-0). *Prerequisite: ENG 101.*

ENG 105
SHORT STORY WRITING
Development of skills in writing imaginative prose and in presenting short stories for class criticism and review. 3 Cr. (3-0).

ENG 201
HISTORY OF ENGLISH LITERATURE I
The works of major English writers from Chaucer to the beginning of the Romantic Period with emphasis upon intellectual, political and literary developments. 3 Cr. (3-0). *Prerequisite: ENG 102.*

ENG 202
HISTORY OF ENGLISH LITERATURE II
The works of major English writers from the Romantic Period to the Modern with emphasis upon intellectual, political and literary developments. 3 Cr. (3-0). *Prerequisite: ENG 102.*

ENG 211
FUNDAMENTALS OF SPEECH
Basic physiology of speech. Oral reading; composition and delivery of expository speeches for different types of audiences. 3 Cr. (3-0).

ENG 252
WORLD LITERATURE
The reading of literature expressing western man's belief in the paramount importance of the individual. Includes a survey of representative works of continental Europe to the present. 3 Cr. (3-0). *Prerequisite: ENG 102*

ENG 290
SPECIAL STUDIES IN ENGLISH
Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

ENVIRONMENTAL SCIENCE (ESC)

ESC 10
ENVIRONMENTAL SCIENCE
Designed especially for the non-science student who wants to develop an ability to understand environmental systems and problems from a scientific viewpoint. Covers many aspects of land, water, and air pollution and its relation to living organisms, especially man. 3 Cr. (3-0), 48 Hrs.

FOOD AND HOSPITALITY (FH)

FH 10
INTRODUCTORY FOODS
Introduction to food service industries. Basic principles of food preparation are investigated. Protein, carbohydrate, and fat cookery. 3 Cr. (2-3).

FH 11
NUTRITION
Sources and functions of nutrients and how they relate to bodily functioning. Dietary essentials of an optimum diet. Includes nutritive requirements for each age stage of the life cycle. 3 Cr. (3-0).

FH 20
QUANTITY FOOD PREPARATION
Cooking foods in quantity. The reasons for preparing certain foods in certain ways and which commercial equipment will produce the best product. 3 Cr. (2-3).

FH 21
MENU PLANNING AND COST CONTROL
Nutritional meals for various age, economic, cultural, and religious groups; menus for commercial, industrial, school, institutional food services; food preferences of customers; merchandising techniques; cost controlling. 3 Cr. (3-0).

FH 22
FRONT OFFICE MANAGEMENT AND HOUSEKEEPING
Introduction to hotel and motel management; managing a front office, including promotion, guest registration, and cost control; science and art of housekeeping and personnel management. 3 Cr. (2-3).

FH 23
DIET THERAPY
In depth study of the principles of therapeutic diets. Includes medical terminology, tours of community health services, and familiarity with diet manuals. Students learn interviewing and counseling techniques and sources of professional updating information. 3 Cr. (3-0).

FH 30
FOOD AND HOSPITALITY WORK EXPERIENCE PRACTICUM (no credit)
Prior to the beginning of the fourth semester the student must complete 120 hours of employment in the food and hospitality industry. Evaluation by the employer, a written report by the student, and discussion of the experience with an instructor are required upon completion of the work experience.

FH 31
HOSPITALITY MANAGEMENT & THEORY
Supervised practical experience in various areas of food and hospitality management and production. Lecture and discussion of work schedules, employer-employee relations, food purchasing and preparation, supervision and training of personnel, menu planning and other subjects related to the student's choice of practicum. 3 Cr. (1-6).

FH 32
PURCHASING, STORAGE, AND SANITATION
Managerial training in all facets of purchasing. Proper procedures for good storage and sanitation. Training of staff in proper procedures to assure production of safe food. 3 Cr. (3-0).

FH 33
HOSPITALITY MERCHANDISING
Techniques of sales, merchandising and promotion as applied to food and lodging establishments. 3 Cr. (3-0).

FH 40
EQUIPMENT AND LAYOUTS
Familiarizes students with all the latest pieces of equipment, and ways to lay out facilities for best production, service, safety and sanitation. 3 Cr. (3-0). *Prerequisites: FH 10, FH 20.*

FH 41
SUPERVISION, WORK SIMPLIFICATION AND INCENTIVES
Analysis of concepts of supervision and its inter-personal relationships, motivations, manual motions, work place layouts, production job analysis and evaluation, establishing work loads. 3 Cr. (3-0).

FH 42
BEVERAGE MANAGEMENT & CATERING
Techniques used in restaurant management related to beverages, and in bar management, consideration of quality in beverage service. Management of the catered meal. Preparation and presentation of classic and international cuisines. 3 Cr. (2-3).

FOREST TECHNOLOGY (FR)

FR 11
DENDROLOGY
Classification, identification, and distribution of woody plants in the United States, with special emphasis on species of local commercial importance. 3 Cr. (2-3).

FR 13
FOREST MENSURATION
Measurement of standing trees, of logs and of other cut wood products; the determination of the contents of these products in terms of board feet, cubic feet, cords, and pounds. The measurement of growth in trees and forests. 3 Cr. (2-3).

FR 15
FOREST BOTANY
The study of plant physiology and anatomy with special reference to trees. The stem structure of trees and the identification of commercial tree species based on microscopic characteristics of wood. 3 Cr. (2-3).

FR 21
PHOTOGRAMMETRY AND FOREST SURVEYING I
Introductory study of the basic techniques of photogrammetry, photo-interpretation; introduction to surveying, including the fundamentals of plane surveying and the use and care of equipment. 3 Cr. (1-6).

FR 26
FOREST ECOLOGY AND WILDLIFE MANAGEMENT
Introduction to Ecology, upon which the management of forest and wildlife resources may be based. Increases the student's understanding of the ecological relationship of forest and wildlife communities. 3 Cr. (2-3).

FR 28
ADVANCED FOREST MENSURATION
Quality determination of logs and trees. Estimating volumes of large timber areas by different sampling techniques. The use and interpretation of aerial photos in forest surveys. 3 Cr. (2-3).

FR 32
FOREST SURVEYING II
Theory and practice of plane surveying techniques for application in property and boundary surveys, map making, construction surveys, and computations. Special emphasis on forestry applications of these principles.3 Cr. (2-3).
Prerequisite: FR 21.

FR 33
EQUIPMENT AND MACHINERY
The operation, care and maintenance of logging machinery, forest fire control equipment and related mechanical devices in common use of forest operations. 3 Cr. (2-3).

FR 36
TIMBER HARVESTING
The felling, skidding, and transportation of timber products from the woods to the point of manufacture. Application of modern logging methods and techniques, including the breakdown of entire tree stems into lengths and units of highest economic values. 3 Cr. (2-3).

FR 38
FOREST PROTECTION
The causes, effects, and methods of control of forest fires. The identification, effects and control of other harmful agents, principally insects and diseases. 3 Cr. (3-0).

FR 42
FOREST PRODUCTS
The conversion of round timber products into a semi-finished state, and the manufacture of these raw materials into finished consumer products. Includes the seasoning of lumber and the preservative treatments of wood to improve its usefulness. 3 Cr. (2-3).

FR 46
SILVICULTURE
The study of forestry practices and systems used in the establishment and management of trees for the sustained production of timber products. 3 Cr. (2-3).

FR 48
FOREST LAND MANAGEMENT AND RECREATION
Basic concepts of multiple use management of publicly and privately owned forest lands. Shows the importance of managing the land for recreation, wildlife, and water. 3 Cr. (2-3).

GEOGRAPHY (GEO)

GEO 101
PHYSICAL GEOGRAPHY
Introduction to topographic maps, landforms, weather elements, climates, soils, and vegetation. 3 Cr. (3-0).

GEOLOGY (GEL)

GEL 105
PHYSICAL GEOLOGY
Basic concepts in the study of the Earth; relationships between Earth materials and the geologic agents and processes that create and modify minerals, rocks, landforms, continents and the ocean basins. 4 Cr. (3-3).

GEL 106
HISTORICAL GEOLOGY
Origin of the Earth, evolution of its crust, and the development and evolution of life thereon; relationships among rock units as evidence for geologic history; fossils as documents of evolution, chronology and environment; relative and absolute age dating of the Earth. 4 Cr. (3-3). *Prerequisite: GEL 105.*

GEL 290
SPECIAL STUDIES IN GEOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. (1-3, laboratory as required).

GERMAN (GER)

GER 103
BEGINNING GERMAN I
Basic grammar and language structure. Comprehension, speaking and reading, with particular regard to pronunciation and accent. 3 Cr. (3-0). *Prerequisite: Permission of the instructor.*

GER 104
BEGINNING GERMAN II
Continuation of GER 103. 3 Cr. (3-0). *Prerequisite: GER 103.*

GOVERNMENT (GOV)

GOV 201
AMERICAN GOVERNMENT—NATIONAL
Federal government, its powers and organization. Functions of legislative, executive and judicial branches. Our federal system as it has developed. 3 Cr. (3-0).

GOV 202
STATE AND LOCAL GOVERNMENT
State and local governmental institutions, their functions and responsibilities; intergovernmental relations. 3 Cr. (3-0).

GOV 290
SPECIAL STUDIES IN GOVERNMENT
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

GRAPHIC ARTS (GA)

GA 13
LAYOUT AND DESIGN
Analysis of materials, tools and techniques used in preparation of copy for reproduction; paste-up and color separation overlays. 4 Cr. (2-6).

GA 14
PRINCIPLES OF TYPOGRAPHIC DESIGN
Training in conventional and modern layouts as applied to solution of problems in printing typography. 4 Cr. (2-6).

GA 25
PROCESS CAMERA
Concepts and techniques of darkroom procedures for reproduction of line and halftone copy on process cameras. 4 Cr. (2-6).

GA 27
FILM ASSEMBLY AND PLATEMAKING
A study and application of various methods of assembling negatives and positives in the form of flats in preparation for making offset plates. Theory and application relating to various types of plates and processing procedures and register requirements of stripping and platemaking. 4 Cr. (2-6).

GA 34
PRINTING SUBSTRATES AND FINISHING OPERATIONS
Identification, selection, and relationships of films, foils, paper and board stocks, and non-printing conversions for the printing, publishing, and allied industries. 4 Cr. (2-6).

GA 38
PRINTING PRESSES
Correlation of printing press operation; ink mixing and matching, registration; preventive maintenance for quality analysis. 4 Cr. (2-6).

GA 42
PRINTING ESTIMATING PRACTICES
Lab class offering experience in estimating jobs, writing specifications and planning jobs for production. 4 Cr. (2-6).

GA 43
PRINTING PRODUCTION PRACTICES
Lab instruction relating to studies in first three semesters; firsthand opportunity to forecast production, route and plan, schedule, dispatch, inspect, control stores and stock; material handling; personnel management and industrial engineering. 4 Cr. (2-6).

GA 44
INDEPENDENT STUDY
Under the direction of the staff, student selects and develops comprehensive independent study project of own design. Project must be approved by student's advisor and Division Director. 2 Cr. (0-6).

HEAVY CONSTRUCTION EQUIPMENT SERVICE & OPERATION (SO)

SO 11
SERVICE AND OPERATION I (8 weeks)
Introduction to heavy equipment mechanics, starting with basic tools, micrometers, lifting equipment, and progressing into complete engine nomenclature and overhaul. 216 Hrs. (5-22).

SO 12
SERVICE AND OPERATION II (8 weeks)
Basic vehicle electrical systems including electro-magnetism, ignition circuits, starting circuits, and electric trouble shooting. 216 Hrs. (5-22).

SO 23
SERVICE AND OPERATION III (8 weeks)
Introduction to the service and repair of diesel engines, various types of clutches, and gear-type transmissions. 192 Hrs. (5-19).

SO 24
SERVICE AND OPERATION IV (8 weeks)
Introduction to the service and repair of torque converters, differentials and final drives. Maintenance of various seals and bearings. 192 Hrs. (5-19).

SO 35
SERVICE AND OPERATION V (8 weeks)
Study of the various types of hydraulic systems used on heavy construction equipment. Includes a study of fuels and lubricants. 216 Hrs. (5-22).

SO 36
SERVICE AND OPERATION VI (8 weeks)
Introduction to basic construction surveying, construction blueprint reading, and grade stake reading. Various types of brake systems used on heavy equipment. Operation and service of several types of heavy equipment. Advanced electrical circuits and trouble-shooting. 216 Hrs. (5-22).

SO 43
SERVICE AND OPERATION VII (8 weeks)
Operation of various types of heavy construction equipment such as dozers, loaders, motor graders, and scrapers. Service of the machines operated. 240 Hrs. (5-25).

SO 44
SERVICE AND OPERATION VIII (8 weeks)
A continuation of SO 43 emphasizing the development of skills as an equipment operator or mechanic. 240 Hrs. (5-25).

HISTORY (HIS)

HIS 103
WESTERN CIVILIZATION I
Survey and analysis of major intellectual, social, political, and economic developments of western civilization from ancient times until the 18th Century. 3 Cr. (3-0).

HIS 104
WESTERN CIVILIZATION II
Survey and analysis of major intellectual, social, political, and economic developments of western civilization from the 18th Century until the present. 3 Cr. (3-0).

HIS 201
UNITED STATES–SURVEY I
Political, economic, and social development of the United States from colonial times to, and including, the Civil War and the Reconstruction Period. 3 Cr. (3-0).

HIS 202
UNITED STATES–SURVEY II
Political, economic, and social development of the United States from 1877 to and including the current Civil Rights Movement. 3 Cr. (3-0).

HIS 212
TWENTIETH CENTURY EUROPEAN
Major events from the First World War to the present with emphasis on industrialization, nationalism, social upheaval, totalitarianism, anti-colonialism, and war. 3 Cr. (3-0).

HIS 290
SPECIAL STUDIES IN HISTORY
Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

JOURNALISM (JO)

JO 10
NEWS WRITING
Techniques of basic news writing for press systems with emphasis on organizing the story. Students write and rewrite; instructor edits. Detailed critiques and class discussion of student writing. 3 Cr. (3-0).

JO 11
PHOTOGRAPHY FOR NEWSMEN
Introduction to photography; how to use an adjustable camera. Course presumes no previous experience in photography and covers the basic skills needed to take effective news photos in black and white. 2 Cr. (1-3).

JO 12
NEWS REPORTING
Techniques of covering a news beat. Emphasis on public affairs reporting. 3 Cr. (3-0). *Prerequisites: JO 10 and ability to type.*

JO 13
FEATURE WRITING
Guidance on format and structure of news features, brites, color stories, and side bars. Techniques of interviewing and researching feature stories. Instruction in gathering material and identifying good ideas. 3 Cr. (3-0). *Prerequisites: JO 10 and ability to type.*

JO 14
EDITING
Techniques of editing material for publications, printing processes, copyreading, headline writing, typography, picture editing, layout legal and ethical considerations. 3 Cr. (3-0). *Prerequisites: JO 10 and ability to type.*

JO 16
NEWSPAPER MANAGEMENT AND COMMUNITY RESPONSIBILITY
Managing and publishing newspapers in the United States; problems of law, finance, personnel, promotion, technological change, and community service. 3 Cr. (3-0).

JO 21
IN-SERVICE TRAINING I
On-the-job training with student publications, with the College Information Office, and with a local newspaper. 2 Cr. (0-6).

JO 22
IN-SERVICE TRAINING II
On-the-job training in the Office of College Information or on the staff of student publications. Students must have demonstrated the ability to handle writing assignments with minimum supervision. 2 Cr. (0-6).

JO 23
IN-SERVICE TRAINING III
Editorial responsibilities on student publications or substantial assignments with the Office of College Information requiring initiative and proficiency. 2 Cr. (0-6).

JO 30
ADVERTISING
The impact of advertising and its history in the American culture. Examination of phases of marketing analysis, media selection, creative strategy, advertising sales promotion; techniques of writing headlines and copy. 3 Cr. (3-0).

MACHINIST (MG)

MG 10
BASIC MACHINE SHOP I (8 weeks)
Theory and practice of elementary bench work; use of hand tools; operation and care of drill press, shaper and elementary blueprint reading. 200 Hrs. (1-24).

MG 15
BASIC MACHINE SHOP II (8 weeks)
Engine lathe and milling machine; basic machining operations on the lathe and milling machines with emphasis placed on safety and care of the machines. 200 Hrs. (1-24).

MG 20
BASIC MACHINE SHOP III (8 weeks)
Care and sequence of operations; turret lathes and automatic screw machines. 200 Hrs. (1-24).

MG 25
BASIC MACHINE SHOP IV (8 weeks)
Use and care of precision measuring equipment; advanced blueprint reading; freehand sketching and inspection practices. 200 Hrs. (1-24).

MG 30
ADVANCED MACHINE SHOP I (8 weeks)
Use of grinding machines for cylindrical, internal and surface grinding. 200 Hrs. (1-24).

MG 35
ADVANCED MACHINE SHOP II (8 weeks)
Theory and practice of thread and tool cutter grinders; with various phases of heat treating; normalizing, carburizing, annealing, hardening, and tempering of various tool steels. 200 Hrs. (1-24).

MG 40
ADVANCED MACHINE SHOP III (8 weeks)
Advanced training on drill press, engine lathe milling machine and shaper, with emphasis on indexing, gear cutting and precision boring. 200 Hrs. (1-24).

MG 45
ADVANCED MACHINE SHOP IV (8 weeks)
Advanced training on drill press, engine lathe, milling machine shaper; with emphasis on precision boring and die making. 200 Hrs. (1-24).

MATHEMATICS (MAT)

MAT 07
DEVELOPMENTAL ARITHMETIC
See DEVELOPMENTAL STUDIES, pg. 64.

MAT 09
DEVELOPMENTAL ALGEBRA
See DEVELOPMENTAL STUDIES, pg. 64.

MAT 10
TECHNICAL MATHEMATICS I
Arithmetic operations with whole numbers, common and decimal fractions, per cent, basic principles of measurement, and other selected topics. Intended for certificate students. 48 Hrs. (3-0).

MAT 15
GENERAL AVIATION MATHEMATICS
Fundamental operations with common and decimal fractions, mixed numbers, square root algorithm, area, volume, ratio, signed numbers, and other selected topics. Intended for aviation maintenance technicians (AC). 48 Hrs. (3-0).

MAT 20
TECHNICAL MATHEMATICS II
Topics from algebra, geometry, right triangle trigonometry, and others. Special emphasis on applications to practical problems in the student's area of concentration. May be used as an optional elective. 3 Cr. (3-0). *Prerequisite: MAT 10 or permission of instructor.*

MAT 25
INTERMEDIATE ALGEBRA
Properties of real numbers, polynomials, fractions, exponents, roots, and radicals, first and second degree equations and inequalities in one variable, functions, graphs, and other selected topics. Intended for students without a strong working knowledge of algebra. 3 Cr. (3-0). Cannot be used to satisfy general studies requirement. *Prerequisite: One year of high school algebra or placement by mathematics exam.*

MAT 100
INTRODUCTION TO MATHEMATICS I
Explorations with number and geometric patterns, mathematical recreations, flow charts, sets, logic, systems of numeration, and an introduction to algebra. Intended as a general education course for non-mathematics or science majors. 3 Cr. (3-0). *Prerequisite: One year of high school algebra.*

MAT 103
COLLEGE ALGEBRA
Properties of real numbers, equations and inequalities, systems of equations, matrices, determinants, mathematical induction, binomial theorem, sequences, basic right triangle trigonometry, sine and cosine laws. Designed for general studies and technology students desiring a thorough precalculus algebra background. 3 Cr. (3-0). *Prerequisite: Two years of high school algebra. MAT 25, or placement by examination.*

MAT 104
COLLEGE TRIGONOMETRY
Continuation of MAT 103. Circular, trigonometric, inverse, and logarithmic functions, complex numbers, probability and other selected topics. 3 Cr. (3-0). *Prerequisite: MAT 103 or placement by examination.*

MAT 109
APPLIED CALCULUS
Relations and functions (conics), limits, derivatives and integration of algebraic functions, trigonometric functions and transcendental functions, methods of integration and applied problem solving. Is excellent preparation for students who intend to sit for the Engineer in Training Examination. 3 Cr. (3-0). *Prerequisite: College Algebra and trigonometry.*

MAT 112
CLACULUS I—INTRODUCTION TO DIFFERENTIAL AND INTEGRAL CALCULUS
Derivatives, continuity, slopes, velocity, rates of change, curve sketching, chain rule, related rates, maximum-minimum theorems, differentials, integration, and some applications of integration. 4 Cr. (4-0). *Prerequisite: MAT 104, or permission of instructor.*

MAT 200
INTRODUCTION TO MATHEMATICS II
Mathematical systems, properties of integers, rational, real and complex numbers, selected topics from geometry, probability, and statistics. Intended as a general education course for non-mathematics or science majors. MAT 100 is not required. 3 Cr. (3-0). *Prerequisite: One year of high school algebra.*

MAT 201
ELEMENTARY STATISTICS I
An introduction to frequently applied statistical methods; descriptive statistics, frequency distributions, elementary probability, binomial and normal distributions, Central Limit Theorem, statistical inference and tests of hypotheses, Chi-square and t-tests. Intended for general studies and technology students desiring a basic working knowledge of statistics. 3 Cr. (3-0). *Prerequisite: One year of high school algebra.*

MAT 202
ELEMENTARY STATISTICS II
Continuation of MAT 201, with emphasis on applied statistical techniques and design of experiment; Student T, Chi-square, F-tests, linear regression, correlation, and models; analysis on enumerative data; analysis of variance; non-parametric statistics. To be offered regularly in the Spring Term of even numbered years. 3 Cr. (3-0). *Prerequisite: MAT 201.*

MAT 211
CALCULUS II
Techniques of integration, limits, sequences and series, vectors, differentiation—partial derivatives, multi-variable differentiation, directional derivatives. 4 Cr. (4-0). *Prerequisite: MAT 112.*

MAT 220
MATRIX ALGEBRA
Matrices, determinants, inverse of a matrix, rank and equivalence, linear equations and linear dependence, vector spaces, linear transformations, characteristic equations of a matrix, bilinear, quadratic, and Hermintian forms. Recommended for computer science, science, and technology students. May be used as a core requirement or general elective for general studies students. 3 Cr. (3-0). To be offered regularly in the Spring Term of odd numbered years. *Prerequisite: Two years of high school algebra, MAT 103 or permission of instructor.*

MAT 290
SPECIAL TOPICS IN MATHEMATICS
Special arrangements of individuals or groups to study topics of interest, i.e., Differential Calculus, Modern Algebra, Modern Geometry. Arrangement to be made through instructor and Division Director. One to four credits per course.

OFFICE MACHINE REPAIRS (OR)

OR 12
OFFICE MACHINE REPAIR I
Typewriter operation; functional testing; trade history; machine development, rubber parts, ribbons; machine models; training to perform periodic preventive maintenance inspections. 384 Hrs. (2-22).

OR 22
OFFICE MACHINE REPAIR II
Analysis of typewriter sections and understanding of components; dis-assembly and reassembly of machines to develop manipulative skills; trade procedures and job standards; drive, power roll, type action, and controlled operations of electric typewriters. 432 Hrs. (3-24).

OR 32
OFFICE MACHINE REPAIR III
History, business use, and sectional components of adding machines; operation and testing of ten-key and full keyboard adding machines; servicing, adjusting, and repair of mechanical problems. 432 Hrs. (3-24).

OR 43
OFFICE MACHINE REPAIR IV
Stencil duplicating arts; duplicator operation and service; introduction to office copiers; office machine business management program. 432 Hrs. (3-24).

OPERATING ROOM TECHNICIAN (OT)

OT 02
BODY STRUCTURE AND FUNCTION
Basic structure and function of the body. 80 Hrs. (5-0).

OT 11
OPERATING ROOM TECHNIQUES I
General introduction to hospitals and operating rooms. Job descriptions and qualifications. Professional, legal, moral, and religious responsibilities. Concepts of anesthesiology, asepsis, and safety. Related housekeeping skills. Personal health and hygiene. Techniques and skills of the operating room technician. Selected learning experiences in the operating room 320 Hrs. (10-10).

OT 20
OPERATING ROOM TECHNIQUES II
The study of the condition of illnesses, operations, positioning, equipment, materials, and anesthesia used in the various surgical specialties with selected experience in the operating room. 64 Hrs. (4-0).

OT 21
SUPERVISED CLINICAL EXPERIENCE
Practical clinical experiences enabling the students to function at a beginning level as assistant circulator and scrub-in technician. 416 Hrs. (0-26).

ORNAMENTAL HORTICULTURE (OH)

OH 11
HORTICULTURE SOILS
Study of soil texture, structure, organic matter, and plant nutrients as they are related to the use of lime and fertilizers. Synthetic soils and moisture-air relationships included. 3 Cr. (2-3).

OH 12
WOODY PLANTS I
An introduction to the study of woody plants grown in nurseries for landscape purposes and of those found in arboretums, woodlands, and fields of the various geographical areas or regions of the United States. 2 Cr. (1-3).

OH 13
HERBACEOUS PLANTS
A study of the classification, identification, and general culture of perennials, bulbs, and roses. Landscape use and design of flower borders is practiced. 3 Cr. (2-3).

OH 20
GREENHOUSE CROP PRODUCTION I
An introduction to greenhouse crop production with emphasis on environmental control, plant culture, facilities, and equipment. Includes demonstration of techniques. 3 Cr. (2-3).

OH 21
NURSERY PRODUCTION I
Stresses the theory and practices necessary to produce profitable nursery stock. The maintenance of a productive nursery, soil, crop, and land rotations. 3 Cr. (2-3).

OH 24
PLANT PROPAGATION
Theory and practice of plant propagation by sexual and asexual means with applications in floriculture production, nursery production, and forestry. 3 Cr. (2-3).

OH 26
WOODY PLANTS II
Continuation of OH 12. Additional plants are studied with major emphasis on the study of deciduous trees, shrubs, vines, ground covers, and their varieties and cultivars. 3 Cr. (2-3). *Prerequisite: OH 12.*

OH 30
FLORAL DESIGN I
Instruction and application of principles in the art of floral design, including form, styles, and composition. Includes designing floral arrangements, wreaths, sprays, baskets, bouquets, wedding flowers, and corsages. 3 Cr. (1-6).

OH 31
GREENHOUSE CROP PRODUCTION II
Production of cut flowers and potted plants with emphasis on techniques used for important commercial crops. Each crop will be grown by students using school facilities. 3 Cr. (2-3).

OH 33
HOUSE AND CONSERVATORY PLANTS
The identification, culture, and propagation of florist's potted plants and conservatory plants. Principles and construction of terrariums and dish gardens included. 3 Cr. (2-3).

OH 35
NURSERY PRODUCTION II
Production schedules are correlated with nursery land use. Considers factors affecting choice and quantities of stock to be grown, as well as development of cost finding and price establishing. 3 Cr. (2-3).

OH 37
PLANT INSECTS & DISEASES
Study of the insects and diseases of horticulture crops. The nature, structure, growth habits, injurious effects, and control of insects and related forms. The most common and injurious plant diseases are studied for identification and control. 3 Cr. (2-3). *Prerequisite: BIO 03.*

OH 39
FLORAL DESIGN II
A continuation of OH 30 with the addition of designing dried and permanent arrangements. Stresses shop layout and familiarity with routine procedures in the operation of a flower shop. 3 Cr. (2-3). *Prerequisite: OH 30.*

OH 41
GREENHOUSE CROP PRODUCTION III
Production of potted plants, bedding plants, and other crops using commercial techniques. Includes production, planning, crop rotation, and the role of management. 3 Cr. (2-3).

OH 42
WOODY PLANTS III
Advanced study of plant identification. Emphasis on the study of broad leaved and narrow leaved evergreens—their varieties and cultivars. 3 Cr. (2-3). *Prerequisites: OH 12 and OH 26.*

OH 43
FLOWER SHOP OPERATION
Emphasizes buying, pricing, sales, inventory, personnel, record keeping, and general principles related to the commercial retail flower shop. Lab practice in perfecting design techniques and originality. 3 Cr. (2-3).

OH 45
LANDSCAPE CONSTRUCTION
Establish landscape features within the horticulture gardens of the College. Establishment and maintenance of turf areas is included. 3 Cr. (1-6).

OH 46
HORTICULTURE MECHANICS
Operation and maintenance of horticulture equipment to include small gasoline engines, electric motors, electrical fans, environmental controls, and other soil working and irrigation equipment. 3 Cr. (2-3).

OH 48
LANDSCAPE MAINTENANCE
Covers aspects of turf management and tree care (arboriculture). Establishment and maintenance of different types of turf areas. Emphasis on golf course, institutional, park, and home turf areas. Shade tree planting, climbing, guying, pruning, fertilizing, cabling, and bracing. Stresses evaluation of ornamental trees and general care. 3 Cr. (2-3).
Prerequisites: OH 12 and OH 37.

OH 49
LANDSCAPE DESIGN
Covers the principles and problems of landscape design. Emphasis on the proper and effective use of plant materials in developing domestic and public areas to make them as attractive and utilitarian as possible. Includes basic drawing and drafting principles. 3 Cr. (1-6). *Prerequisites: OH 12 and OH 26*

PHILOSOPHY (PHL)

PHL 101
INTRODUCTION TO PHILOSOPHICAL ANALYSIS
Investigation of major perennial problems in philosophy; Meaning and Truth, Perception and External World; God, Mind and Body. 3 Cr. (3-0).

PHL 102
ETHICS AND POLITICAL PHILOSOPHY
Status of deontological language, free will and responsibility, major issue in contemporary political philosophy. 3 Cr. (3-0).

PHYSICAL EDUCATION (PE)

The Physical Education requirements for PE 105 and 108 may be waived with permission of the Dean and the Coordinator of Physical Education if the student has been in the Armed Services for at least one year of active duty or if it is determined that he/she should be excused because of age or physical condition.

PE 105
PHYSICAL EDUCATION
Instruction and participation in one or more of the following activities: Adapted physical education, archery, badminton, basketball, beginning swimming, bowling, cross country, elementary games, fencing, physical fitness, field hockey, flag football, golf, gymnastics, karate, modern dance, skiing, soccer, softball, speedball, square dance, tennis, track and field, volleyball, water life saving, water safety instructors, wrestling, yoga, and others if there is sufficient interest in an activity not listed above. 1 Cr. (0-2).

PE 106
PHYSICAL EDUCATION
Instruction and participation in one or more of the following activities: Adapted physical education, archery, badminton, basketball, beginning swimming, bowling, cross country, elementary games, fencing, physical fitness, field hockey, flag football, golf, gymnastics, karate, modern dance, skiing, soccer, softball, speedball, square dance, tennis, track and field, volleyball, water life saving, water safety instructors, wrestling, yoga, and others if there is sufficient interest in an activity not listed above. 1 Cr. (0-2).

PE 107
PHYSICAL EDUCATION
Instruction and participation in one or more of the following activities: Adapted physical education, archery, badminton, basketball, beginning swimming, bowling, cross country, elementary games, fencing, physical fitness, field hockey, flag football, golf, gymnastics, karate, modern dance, skiing, soccer, softball, speedball, square dance, tennis, track and field, volleyball, water life saving, water safety instructors, wrestling, yoga, and others if there is sufficient interest in an activity not listed above. 1 Cr. (0-2).

PE 108
PHYSICAL EDUCATION
Instruction and participation in one or more of the following activities: Adapted physical education, archery, badminton, basketball, beginning swimming, bowling, cross country, elementary games, fencing, physical fitness, field hockey, flag football, golf, gymnastics, karate, modern dance, skiing, soccer, softball, speedball, square dance, tennis, track and field, volleyball, water life saving, water safety instructors, wrestling, yoga, and others if there is sufficient interest in an activity not listed above. 1 Cr. (0-2).

PE 109
PERSONAL AND COMMUNITY HEALTH
Up-to-date information concerning personal and community health problems of the college student today. 2 Cr. (2-0).

PHYSICS (PHY)

PHY 20
PHYSICS SURVEY
Covers most of the following topics, selected to meet the needs of the majority of students in any particular section: matter and measurement; behavior of solids, liquids, and gases; mechanics, including forces, motion, energy, power, and machines; heat; sound; light; optics; magnetism; electricity; atomic phenomena. 3 Cr. (3-0), 48 Hrs.
Prerequisite: MAT 10.

PHY 21
PHYSICS–MECHANICS
Lecture, demonstrations, problem-solving course in elementary mechanics; basic concepts of scientific method; the metric systems; vectors, translatory motion; rotary motion; work, power, energy; physical properties of liquids, solids, gases. 4 Cr. (3-3), 96 Hrs. *Prerequisites: MAT 104 or equivalent and one year of high school science.*

PHY 22
INTRODUCTION TO METALLURGY
Introduction to science of physical metallurgy; chemical composition, crystallization, effects of mechanical treatment: drawing, rolling, shaping, thermal or heat treatment. 4 Cr. (4-0), 64 Hrs. *Prerequisite: PHY 21.*

PHY 31
PHYSICS–ELECTRICITY AND MAGNETISM
Fundamental concepts of electrostatics, electrolysis; AC and DC circuits, magnetism; electromagnetic induction; basic principles of electricity. 4 Cr. (4-0), 64 Hrs. *Prerequisite: PHY 21.*

PHY 33
PHYSICS–HEAT AND LIGHT
Basic principles of heat and its measurements: Thermometry, calorimetry, expansion of liquids, solids, and gases, transfer of heat; study of light including refraction, illumination, optics and color 4 Cr. (3-3), 96 Hrs. *Prerequisite: PHY 21.*

PHY 105
GENERAL PHYSICS I
Principles of mechanics and heat. Calculus will be used whenever this method leads to a more direct solution. 4 Cr. (3-3). *Corequisite: MAT 112.*

PHY 106
GENERAL PHYSICS II
Continuation of PHY 105. Principles of electricity, magnetism, wave motion, optics and sound. 4 Cr. (3-3). *Prerequisite: PHY 105. Corequisite: MAT 211.*

PHY 111
INTRODUCTORY PHYSICS
Fundamental laws and properties of matter, mechanics, heat and light with special emphasis on electricity and magnetism. 4 Cr. (3-3).

PHY 113
RADIATION PHYSICS
The fundamentals of electrical and radiation physics and the principles underlying the operation of X-ray equipment and auxiliary devices. 3 Cr. (3-0). *Prerequisite: PHY 111.*

PHY 210
MECHANICS
Intermediate course in kinematics and dynamics. Differential and integral calculus are used extensively in derivations and problems. 4 Cr. (3-3). *Prerequisite: PHY 106 and MAT 211.*

PHY 220
MODERN PHYSICS
Atomic and nuclear physics including structures of atom and nucleus, radioactivity; fission and fusion; relativity; and the periodic table of elements. 4 Cr. (3-3). *Prerequisites: PHY 106 and MAT 211.*

PLUMBING AND HEATING (PL)

PL 10
PLUMBING AND HEATING I (8 weeks)
Introduction to Plumbing and Heating trade; use of hand and power tools; introduction to cast iron, terra cotta, copper, iron fiber, and etc. Pipe fundamentals; safety procedures. 192 Hrs. (5-19).

PL 15
PLUMBING AND HEATING II (8 weeks)
Theory, materials, and methods for venting and draining plumbing systems; installation of septic systems; individual projects. 192 Hrs. (5-19).

PL 20
PLUMBING AND HEATING III (8 weeks)
Domestic hot water distribution, etc.; basic science; basic steam and hot water heating; individual projects installing bathrooms, toilet rooms, etc. 192 Hrs. (5-19).

PL 21
PLUMBING AND HEATING IV (8 weeks)
Types of steamheating systems; types of hot water systems; boilers; piping; heat transfer equipment; accessories; individual plumbing and heating projects; estimating heat loss. 192 Hrs. (5-19).

PL 30
PLUMBING AND HEATING V (8 weeks)
Introduction to blueprint reading and pipe drafting, material ordering; repair work; rigging; individual projects and live work. Skills required to calculate heat loss. Practicum involves calculating, designing, and laying out hot water heat systems. 192 Hrs. (5-19).

PL 31
PLUMBING AND HEATING VI (8 weeks)
Advanced blueprint reading; estimating materials; design and layout of plumbing and heating systems; individual projects and live work involving Hydronic Hot Water systems, gas, oil and coal fired systems. 192 Hrs. (5-19).

PL 40
PLUMBING AND HEATING VII (8 weeks)
Use of lead working tools; bending lead pipe; preparing lead pipe for wiping; introduction to lead wiping; individual projects and live work. Practicum offers the student an opportunity to design, layout and install functioning steam mini-systems. System maintenance and trouble-shooting are emphasized. 192 Hrs. (5-19).

PL 41
PLUMBING AND HEATING VIII (8 weeks)
Wiping round, branch, and vertical lead joints; building maintenance; use of fundamental sheet metal tools, materials and supplies, the functions of hot air heat systems and the design, layout and installation of hot air heat systems; live work. 192 Hrs. (5-19).

PRACTICAL NURSING (NU)

NU 01
NURSING RELATIONSHIPS
Orientation to the program; the learning process; communication skills; concepts of health; major health problems and agencies; trends in nursing; roles and characteristics of nurses; nursing organizations; legal and religious implications; range and scope of functions of the nurse; administrative lines; fundamentals of ethical, psychological, social and human relationships. 48 Hrs. (3-0).

NU 02
SCIENTIFIC PRINCIPLES RELATING TO NURSING
The location, description, and function of gross anatomical structures; common pathogens, their characteristics and methods of control; common elements found in the body and their relation to the body in health; the relation of physical properties to the functioning body; the process of metabolism and homeostasis; psycho-social and economic factors related to nutrition and dietary patterns, nutritional needs at all ages and under various conditions, the relation of nutrition to health; associated vocabulary. 96 Hrs. (6-0).

NU 10
FOUNDATIONS OF NURSING
Basic nursing knowledge and skills common to all areas of nursing practice. Emphasizes the basic need of patients, utilizing individual patient situations including physical hygiene, comfort, rest, nutrition; the process of developing, implementing, and evaluating nursing care plans is studied and used in patient care. Includes mental health concepts, rehabilitation needs, communication skills, drug preparation and administration, body mechanics, safety practice and basic concepts of asepsis. 304 Hrs. (6-13).

NU 11
MEDICAL-SURGICAL NURSING—ELEMENTARY (15 weeks)
Principles of patient care dealing with general medical and surgical conditions. Emphasis on the adult patient in relation to his needs; the cause, treatment, and the prevention of illness; the nursing care involved. The student will be expected to function progressively as a contributing member of the nursing team, and to develop and carry out patient centered care plans geared to patient needs. Added skills are acquired in nursing procedures. 225 Hrs. (6-9). *Prerequisite: NU 10.*

NU 12
PARENTIAL AND CHILD HEALTH (15 weeks)
Focuses on the concept that the family is the basic unit of society. Helps prepare the student for patientside experiences with prenatal, intrapartum and post partum mothers, and the well and ill child. Growth and development, history, current trends, and community agencies in parental and child health are included. Deviations from normal are considered, but the emphasis is on normal aspects. The student participates in the care of these individuals. 270 Hrs. (6-12). *Prerequisite: NU 10.*

NU 13
MEDICAL-SURGICAL NURSING—INTERMEDIATE (15 weeks)
Continuation of NU 11. Further develops the knowledge and skills which enable the student to provide nursing care which meets the needs of patients of all ages with major health problems. Development of skills in assisting with critically ill, unconscious, moribund and mentally ill patients. 495 Hrs. (12-21). *Prerequisite: NU 11.*

NU 14
PRACTICUM
Students will be assigned to the cooperating institutions for three weeks to further develop skills, in nursing procedures and patient care. 75 Hrs. (0-25). *Prerequisite: NU 13.*

PRINTING (GP)

GP 01
COMPOSING I
Introductory applications of major composing systems; analysis of copy, layouts, and mechanicals. 128 Hrs. (2-6).

GP 02
PHOTOMECHANICAL I
Introductory applications of major process camera, film assembly, and platemaking operations. 128 Hrs. (2-6).

GP 03
PRESS AND BINDERY I
Introductory applications of major printing press and bindery operations. 128 Hrs. (2-6).

GP 04
COMPOSING II
Advanced study and applications on composing machines, copy-preparation principles, working layouts, and mechanicals. 128 Hrs. (2-6).

GP 05
PHOTOMECHANICAL II
Advanced study and applications on process cameras, film assembly, proofing, and plating. 128 Hrs. (2-6).

GP 06
PRESS AND BINDERY II
Advanced study and applications on ink mixing, lithographic presses, bindery equipment, and procedures. 128 Hrs. (2-6).

PSYCHOLOGY (PSY)

PSY 101
GENERAL PSYCHOLOGY
Introduction to the science of human behavior. 3 Cr. (3-0).

PSY 202
EDUCATIONAL PSYCHOLOGY
Psychological principles and concepts applied to learning. Individual differences, motivation and emotion. 3 Cr. (3-0).
Prerequisite: PSY 101 or permission of the instructor.

PSY 205
ABNORMAL PSYCHOLOGY
Principal forms of mental and emotional disorders with emphasis on their causes, symptoms, and course of treatment. Goal to study normal behavior by examining such behavior in distortion or in exaggeration. 3 Cr. (3-0).
Prerequisite: Permission of the instructor.

PSY 210
SOCIAL PSYCHOLOGY
Interaction of individuals in their several group relations, the contacts of harmony, and conflict within groups as well as between groups, group leadership and group controls, phenomena of imitation and suggestion. 3 Cr. (3-0).
Prerequisite: Permission of the instructor.

PSY 215
DEVELOPMENTAL PSYCHOLOGY
Psychological development and change throughout the life span, with emphasis on basic principles of child and adolescent development, genetic and environmental influences on the course of physical, motor, intellectual, emotional, social, and personality development. 3 Cr. (3-0).
Prerequisite: PSY 101.

PSY 290
SPECIAL STUDIES IN PSYCHOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

RADIOLOGIC TECHNOLOGY (RT)

RT 10
RADIOLOGIC TECHNOLOGY I
Basic concepts of ethical principles and medical structure. Chemical constituents of processing a radiographic film and efficient darkroom (processing) procedures. Theoretical and practical instruction on radiographic positioning of body structure and organs. Manipulation of exposure factors pertaining to milliamperage, kilovolts, distance, and time. 5 Cr. (3-13).

RT 11
RADIOLOGIC TECHNOLOGY II
Theory of x-ray technique. Necessity of different radiographic views to avoid superimposition of structure. The involvement of contrast media in relation to reactions, and contraindications to these media. Emphasis on nursing procedures as they relate to radiology. 7 Cr. (4-16).

RT 12
RADIOLOGIC TECHNOLOGY III
Create a working combination or establish a new combination of exposure factors using x-ray components to produce an interpretive film. Advanced positioning of special radiographic views to demonstrate various anatomical parts. Introduces the operating suite with relationship of medical aseptic technique, and radiographic procedures. Emphasis on technical special radiographic procedures. 10 Cr. (5-15).

RT 13
RADIOLOGIC TECHNOLOGY IV
Organization, supervision, law, and finance related to radiology. Emphasizes handling diseased and injured patients. Introduces the role of radiation therapy in treatment of disease, effects on body tissue, and the methods of radiation therapy. Basic concepts of scientific research. 10 Cr. (5-15).

RT 14
SUMMER SESSION
Internship in associated hospitals for twelve weeks. 5 Cr. (0-40).

SECRETARIAL SCIENCE (BS & ST)

BS 09
TYPEWRITING
For non-business students. Includes touch typewriting, speed and control, familiarization with business letters, reports and forms, and personal typewriting. 1 Cr. (0-3), 48 Hrs.

BS 14
SHORTHAND I
Basic theory and techniques of Gregg shorthand, Diamond Jubilee system. Emphasizes outlines and proper techniques, and attainment of fluency in reading and writing shorthand. Dictation is given at 40-60+ words per minute. 3 Cr. (2-3), 80 Hrs.

BS 15
TYPEWRITING I
Develops a foundation in the skill of typewriting. Includes familiarization with the typewriter, development of proper attitudes, fundamentals of touch typewriting, improvement of speed and accuracy, business letters, tabulation, and typing of numerous forms. 3 Cr. (2-3), 80 Hrs.

BS 17
CLERICAL PROCEDURES
Office procedures and managing general office situations. Includes handling mail, filing, reception work, office communication systems, development of personal qualities necessary for success, self-evaluation, good working habits and attitudes, opportunity for personality development. 176 Hrs. (5-6).

BS 21
TYPEWRITING II
Furthers the student's ability in typewriting. Emphasizes production typing, tabulation, special skill techniques, advanced letter writing, typing forms and documents, and other routine typewriting duties. 3 Cr. (2-3), 80 Hrs. *Prerequisite: BS 15 or test qualification.*

BS 24
SHORTHAND II
Continuation of BS 14. Emphasizes the development of skills in taking dictation and transcription. Typing transcription is included. Dictation is given at 60-80+ words per minute on new material for three minutes with transcription at 98+ percent level of accuracy. 3 Cr. (2-3), 80 Hrs. *Prerequisite: BS 14 or test qualification.*

BS 27
CLERICAL WORKSHOP
Includes instruction in the typewriting of reports, office forms, statistics, and other production work. Instruction in the use of the more common types of duplicating equipment is given. Students will operate the mimeograph and spirit duplicating machines and become familiar with the more common dictation and transcription equipment used in offices. Simulated office assignments and situations are incorporated into the program. 192 Hrs. (6-6). *Prerequisites: BS 15 and BS 17.*

BS 28
SECRETARIAL PROCEDURES
Introduction to the responsibilities and the opportunities of the secretarial position. Emphasizes administrative aspects of secretarial work. Includes office forms, mailing operations, filing, communications, duplicating processes, and dictating and transcribing machines. 2 Cr. (2-1).

BS 31
TYPEWRITING III
Designed for the typist with a sustained, high level, accurate, straight copy speed. Provides an opportunity to master basic typing arrangements, to review and apply technical information, and to develop creativeness and originality. Includes higher levels of executive typing—following directions, editing copy, composing letters, creating arrangements of tables, and other involved typewriting projects. 3 Cr. (2-3). *Prerequisite: BS 21.*

BS 34
SHORTHAND WORKSHOP
Intensive review of advanced Gregg shorthand, with dictation from 80-100+ words per minute. Development of a varied business vocabulary in both shorthand and English. Intensive training in transcription of the business letter and basic business forms leading to speed and accuracy adequate for the requirements of a modern office. Development of supplemental skills necessary for secretarial responsibilities is emphasized. 6 Cr. (4-6), 160 Hrs. *Prerequisite: BS 24.*

BS 44
SECRETARIAL WORKSHOP
Integrates all phases of advanced dictation, transcription, and secretarial skills. Includes intensive office-level practice. 8 Cr. (5-9), 224 Hrs. *Prerequisite: BS 34.*

BS 45
OFFICE INTERNSHIP
Practical experience obtained through work assignments in college offices. 1 Cr. (0-3).

ST 30
MEDICAL TERMINOLOGY
Introduction to medical terminology with emphasis on etiology, symptomatology, pathology, and diagnostic procedures as related to secretarial functions. 3 Cr. (3-0).

SIGN PAINTING (SP)

SP 01
BASIC ALPHABETS
Use and care of sign materials; fundamentals of alphabets; skill in making elements with brush. 400 Hrs. (1-24).

SP 04
COMMERCIAL SIGNS
Brush techniques in laying out and painting commercial signs, trucks, window lettering; masking; using bulletin colors and spray lacquers. 400 Hrs. (1-24). *Prerequisites: SP 01, SP 15, SP 16.*

SP 12
GOLD LEAF
Preparing surfaces for all types of metallic leaf application; treatment of gold leaf on glass. 64 Hrs. (1-3). *Prerequisites: SP 01, SP 15, SP 16.*

SP 13
SILK SCREEN
Executing layout problems for knife-cut silk screens; running production with one man processor. 64 Hrs. (1-3). *Prerequisites: SP 01, SP 15, SP 16.*

SP 14
BILLBOARD PICTORIALS
Enlarging pictorials; mixing paints of different medias; enlargements and painting. 64 Hrs. (1-3).

SP 15
LETTER STROKES AND SHOWCARD LAYOUT
Continuation of practice in letter strokes; preparation of thumbnail sketches and showcard layout. 400 Hrs. (1-24). *Prerequisite: SP 01.*

SP 16
COMMERCIAL SHOWCARDS
Continuation of thumbnail sketches and showcard layout; emphasis on quality with speed. 400 Hrs. (1-24). *Prerequisites: SP 01, SP 15.*

SOCIOLOGY (SOC)

SOC 101
INTRODUCTION TO SOCIOLOGY
An introduction to the basic concepts and methods used in studying the group life of human beings. 3 Cr. (3-0).

SOC 102
GENERAL ANTHROPOLOGY
Survey of the physical and cultural evolution of man and society. Emphasizes the relationship of man's physical structure to behavior and comparative descriptions of recent primitive societies. 3 Cr. (3-0).

SOC 201
MARRIAGE AND THE FAMILY
Examination of traditional and contemporary American marital and family relationships. 3 Cr. (3-0). *Prerequisite: SOC 101.*

SOC 203
INTRODUCTION TO SOCIAL WORK
Basic concepts of social welfare programs, social case work, and field work. Especially designed for students planning a career in social work. 3 Cr. (3-0). *Prerequisite: SOC 101.*

SOC 205
URBAN SOCIOLOGY
The concept of community as it operates and affects individual and group behavior in rural, suburban, and urban settings. Emphasizes characteristic institutions and problems of modern city life. 3 Cr. (3-0). *Prerequisite: SOC 101.*

SOC 207
CRIMINOLOGY
The social relationships and situations involved in the causes and prevention of crime and juvenile delinquency. Particular emphasis on the functioning of the American criminal justice system. 3 Cr. (3-0). *Prerequisite: SOC 101.*

SOC 290
SPECIAL STUDIES IN SOCIOLOGY
Special attention to particular abilities and interests of students. Individual guidance in advanced studies. Admission by permission of the instructor. 1-3 Cr. (1 to 3-0).

SPANISH (SPA)

SPA 103
BEGINNING SPANISH I
Basic grammar and language structure. Comprehension, speaking and reading, with particular regard to pronunciation and accent. 3 Cr. (3-0).

SPA 104
BEGINNING SPANISH II
Continuation of SPA 103. 3 Cr. (3-0). *Prerequisite: SPA 103.*

TOOL DESIGN TECHNOLOGY (TD)

TD 30
TOOL DRAFTING (8 weeks)
Transition between mechanical drafting and tool design; drawings, techniques; purchased parts; standards of shop drawings; material lists; design of cutting tools. 4 Cr. (4-12). *Prerequisite: ED 11.*

TD 31
FIXTURE DESIGN (8 weeks)
Design of leaf and tumble jigs, plain and index milling fixtures, vise jaws, chuck jaws, lathe fixtures, and adaptor plates. 4 Cr. (4-12).

TD 40
GAGE DESIGN AND PROGRAMMING (8 weeks)
Writing programs for point to point and contouring tape controlled machines; design of plug, snap, ring, flush pin depth, length, and indicating gages. 4 Cr. (4-12). *Prerequisite: ED 11.*

TD 41
DIE DESIGN (8 weeks)
Designing of cutting, forming, drawing, and cavity dies; simple progressive and compound arrangements. 4 Cr. (4-12).

TOOLMAKING TECHNOLOGY (TT)

TT 04
ELEMENTARY MACHINE SHOP I
Elementary machine operation; bench, drill press, shaper, engine lathe, milling machines. 3 Cr. (2-3).

TT 05
ELEMENTARY MACHINE SHOP II
Theory, setup and operation of turret lathes and automatic screw machines; introduction to quality control; use of precision instruments. 3 Cr. (2-3).

TT 06
ELEMENTARY MACHINE SHOP III
Theory and practice of grinding machines and wheels; cylindrical, internal and surface grinding; introduction to heat treating 3 Cr. (2-3).

TT 10
BASIC METALS I (8 weeks)
Use of hand tools to produce layouts and objects by hand, simple filing, sawing, assembling, use of drill presses, drill sharpening; drilling to a layout, drill jigs. Producing parallel and square surfaces, shaping rectangular objects. 5 Cr. (5-15).

TT 15
BASIC METALS II (8 weeks)
The theory of grinding tool bits, turning, facing, boring and thread cutting on the lathe. Practice in end, slab and straddle milling, all types of straight and plain milling. 5 Cr. (5-15).

TT 20
AUTOMATIC MACHINERY (8 weeks)
Theory, setup and machining with multi-tooling to produce manufactured parts to blueprint specifications. Some of the typical machines upon which instruction centers are: automatic screw machines, turret lathes and automatic tappers. 5 Cr. (5-15).

TT 25
INDUSTRIAL METROLOGY (8 weeks)
Use of precision instruments, reading and interpreting mechanical drawings, controlling quality of work by sampling method. 5 Cr. (5-15).

TT 30
ADVANCED METALS I (8 weeks)
Theory and practice in advanced percision filing, fitting, lapping and assembling of precision parts required on dies, jigs, and fixtures, boring holes to close dimensions and locations, using precision measuring instruments on machines. 5 Cr. (5-15).

TT 35
ADVANCED METALS II (8 weeks)
Theory and practice on advanced turning and face plate work, thread cutting of all types, taper turning. Theory and practice in producing spur, helical, and bevel gears, indexing, spiral and cam milling, and sheet metal dies. 5 Cr. (5-15).

TT 40
ABRASIVE MACHINING (8 weeks)
Theory and practice in surface, cylindrical and internal grinding. Grinding of studs, special threads, taps and electrical discharge machining are included. 5 Cr. (5-15).

TT 45
HEAT TREATING AND CUTTER GRINDING (8 weeks)
Theory and practice in case hardening, normalizing, carburizing, hardening and tempering of various types of metals. Grinding of tools and cutters is included. 5 Cr. (5-15).

WELDING (WE)

WE 01
ACETYLENE WELDING
Selected units in basic acetylene welding for plumbing students. 80 Hrs. (0-5).

WE 02
ELECTRIC WELDING
Selected units in basic electric welding for plumbing students. 80 Hrs. (0-5).

WE 15
ACETYLENE WELDING
Theory and practice welding of sheet metal and mild steel plate; oxy-acetylene cutting; pipe welding; welding and brazing of ferrous and non-ferrous metals; weld testing; shop safety. 400 Hrs. (1-24).

WE 25
ELECTRIC WELDING
Principles and applications for basic electric welding using various types of electrodes for welding of steel plate in all positions; pipe welding; cast iron welding; weld testing. 400 Hrs. (1-24).

WE 35
INERT GAS WELDING
Theories and practices of manual inert gas shield technique (TIG) and short arc, high speed, semi-automatic, metallic arc process (MIG). 400 Hrs. (1-24).

WE 45
WELDING (ADVANCED)
Practical theory application of weldments of specifications of AWS, API and ASME codes; all position welding of heavy plate and pipe; testing and weld specimens. 400 Hrs. (1-24).

COMMENCEMENT AWARDS

Commencement awards give public recognition of achievement in various areas accompanied by cash awards in varying amounts.

ALCAN CABLE AWARD for scholastic achievement in engineering science. (Engineering Drafting, Electrical, Electronics, Automotive, or Carpentry Building Construction Technology)

ANCHOR/DARLING VALVE AWARD for scholastic achievement in a certificate program in applied arts and sciences.

AMERICAN SOCIETY OF HIGHWAY ENGINEERS AWARD to a student demonstrating high interest, dedication and scholarship in civil engineering.

AVCO AWARD for scholastic achievement in humanities and social sciences.

LEWIS H. BARDO MEMORIAL AWARD to a student who exemplifies the ideals of Lewis H. Bardo. (devotion to duty, helpfulness to others, friendliness, high ideals)

DALE RUSS BERG AWARD for proficiency in the operation and use of heavy equipment.

ELLEN H. BERRY — ALUMNI AWARD to a female student for scholastic achievement and service to the College.

COMMONWEALTH BANK & TRUST COMPANY DATA PROCESSING DEPARTMENT AWARDS to two outstanding students in the Computer Science Program, one for the two year Associate Computer Science Degree and one for the one year Certificate Computer Operator Course, based on the following criteria: scholastic attainment, leadership ability, and contribution to data processing education at WACC.

THE COMPUTER SCIENCE FACULTY AWARDS to two outstanding students in the Computer Science Program who have excelled in the program and who have exhibited those qualities of leadership, friendship, cooperation, and dedication that will make him/her a valuable addition to the profession. One award will be given to a two-year Computer Science Associate Degree student and one to a one-year Computer Operator Certificate student.

DEANS' AWARD for scholastic achievement and service to the College.

ELIZABETH R. DOWNS AWARD for secretarial proficiency.

GLENN E. DUNLAP SCHOLARSHIP AWARD to a student selected by faculty of the Building Construction Department, based on high scholarship standing, better than average skills, dependability and competence, and on capabilities of leadership as exemplified by Glenn E. Dunlap.

FEDERAL AVIATION ADMINISTRATION AWARD to an outstanding graduate from an approved Federal Aviation Maintenance Technician School.

FLECK-MARSHALL OF WILLIAMSPORT, INC. AWARD to the graduating student with the highest grade point average in plumbing and heating.

GAMMA EPSILON TAU FRATERNITY AWARD to the student in the Graphic Arts Program who exhibits outstanding development in skill, capability and leadership, and a willingness to help others.

HELEN A. SMITH AWARD to the student who has shown extraordinary achievement in theory, practice, and personal growth in Practical Nursing.

HOFF SUPPLY COMPANY AWARD, in memory of the late Samuel H. Hoff, Sr., for his understanding and appreciation of the need for plumbing and heating tradesmen to be able to use mathematics effectively and accurately in the application of their craft, to the graduating student in plumbing and heating who excelled in related mathematics and attended college under exceptional conditions.

HOWARD AWARD for scholastic achievement in forestry.

HOWARD AWARD for scholastic achievement in horticulture.

INTERNATIONAL BROTHERHOOD OF ELECTRICAL WORKERS AWARD to the outstanding student in the Electrical Construction Division.

THE RICHARD M. KNAUR AWARD for a student who shows excellence in the field of business and technology and is planning on pursuing this field as his life work.

LEADER NURSING CENTER AWARD to a student in the Practical Nursing program.

THE NORTH CENTRAL PENNSYLVANIA CHAPTER OF THE ASSOCIATION FOR SYSTEMS MANAGEMENT AWARD to a deserving student majoring in Computer Science.

NORTHERN CENTRAL BANK ANNUAL AWARD to a graduate student in the two year Computer Science associate degree curriculum based on the following criteria: the student (1) must plan to enter the data processing field, (2) must have demonstrated excellence in programming and other data processing curriculum, (3) must have maintained an above average total scholastic achievement, and (4) must have demonstrated a high degree of leadership ability.

PENNSYLVANIA INSTITUTE OF CERTIFIED PUBLIC ACCOUNTANTS AWARD for excellence in accounting studies in the Business and Computer Science Division.

PENN-YORK LUMBERMEN'S AWARD for outstanding citizenship and interest in management and wise use of forest resources.

PHI BETA LAMBDA FRATERNITY AWARD for performance and dedication to the fraternity.

PRESIDENT'S AWARD for leadership and service to the college community.

PULLMAN KELLOGG, DIVISION OF PULLMAN, INC., AWARD for scholastic achievement in the associate degree program in applied arts and sciences.

RAUB SUPPLY COMPANY AWARD to the most outstanding student in the Electrical Construction curriculum.

CHAPTER 49 OF THE SOCIETY OF MANUFACTURING ENGINEERS (SME) AWARD, a certificate of merit to the SME student-member who has contributed most to the advancement of manufacturing education.

WILLIAM J. STITZEL MEMORIAL AWARD for the graduate from the heavy construction equipment department who best exemplifies William J. Stitzel's dedication and service to the College and the student body.

ROBERT G. THOMAS AWARD for the graduating student who has attained the highest cumulative average in welding.

TRUSTEES' AWARD to a female student for achievement under exceptional conditions.

TRUSTEES' AWARD to a male student for achievement under exceptional conditions.

U.A. LOCAL NO. 810 PLUMBERS AND STEAMFITTERS AWARD to a graduating student in plumbing and heating, residing in the Local No. 810 membership area, who has shown a strong interest and desire to become a member of the Plumbers and Steamfitters Local No. 810.

WALL STREET JOURNAL STUDENT ACHIEVEMENT AWARD to that graduating student demonstrating superior achievement in business administration.

WEST BRANCH DATA PROCESSING AWARD to an outstanding student in the computer science field.

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1976-77 COLLEGE CALENDAR

FALL TERM/AUGUST 18-DECEMBER 18, 1976

August 18	Faculty Organization & Convocation
August 19-20	Orientation
August 23-24	Registration
August 25-27	Classes Begin
September 6	Labor Day Vacation
September 7	Classes Resume
November 25	Thanksgiving Vacation Begins
November 30	Classes Resume
December 15	Classes End
December 16-18	Final Exams
December 18	End of Fall Term

SPRING TERM/JANUARY 4-MAY 14, 1977

January 4	Staff Development Day
January 5	Registration & Orientation
January 6-7	Classes Begin
February 10	Spring Vacation Begins
February 14	Classes Resume
March 7	Spring Vacation Begins
March 9	Classes Resume
April 7	Easter Vacation Begins
April 12	Classes Resume
May 3	Classes End
May 4-6	Final Exams
May 6	End of Spring Term
May 9-13	Student Orientation
May 14	Commencement

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THE WILLIAMSPORT AREA COMMUNITY COLLEGE

Name _____

Address _____ Tel. No. _____

City _____ State _____ Zip Code _____

High School _____ Year of Graduation _____

College (s) _____

I am interested in the _____ Curriculum _____

I would like further information about _____

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The Community College reserves the right to make any changes it deems advisable after publication of this Bulletin. Each student is expected to be familiar with the information presented in this Bulletin and other College publications.

Bulletin Issue, Vol. 9 August 1976, No. 1

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